Diverse Learning Environments:

Assessing and Creating Conditions for Student Success

Final Report to The Ford Foundation

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The Project in Brief

While the United States aims to regain its status as the leading nation with a college-education population, institutions that serve large numbers of diverse students play a key role in educating historically underrepresented college students in the age of mass higher education, and demand our attention in boosting degree attainment while simultaneously harnessing the educational benefits of diversity for effective leadership in our diverse society. This multifaceted challenge requires coordinated efforts to assess diverse learning environments' campus climate, educational practices, and student outcomes to inform policy and practice that will effectively advance learning for all students. However, until recently, assessment focuses mostly on students and not institutions; and research on climate, practices, and outcomes focused primarily on students in predominantly white, elite four-year institutions. Very little research has been conducted on two and four-year institutions that offer broad access to students in their regions, particularly features of their climate for diversity and the experiences of their student populations. Considering that broad access institutions are critically important in achieving national degree attainment goals, the application of extant research to practice in diverse learning environments is insufficient, pointing to the need for new research tools, inquiry, and models for contemporary contexts. A review of the climate literature and examination of over ninety instruments for this project confirmed the need for a national survey that measures climate, practices, and student outcomes, the development of which was a primary objective of the project (Hurtado, Griffin, Arellano, & Cuellar, 2008). Therefore, a primary objective of the Diverse Learning Environments (DLE) project was to assist educators in addressing the needs and advancing the success of a diverse student population in order to implement practices that will not only increase degree attainments but also prepare their students for leadership in creating a more just society that is increasingly complex and diverse.

Specifically, the DLE project was guided by two overarching sets of objectives: goals for policy research, and goals for institutional research and practice. These included:

Policy Research Goals

- Increase the number of educators and researchers well versed in the issues diverse student populations face as well as advance their quantitative skills.
- Acquaint them with specific postsecondary debates that involve analysis of evidence based on quantitative data.
- Advance their entry into the debates and current issues that require their expertise.

Institutional Research and Practice Goals

- Develop a greater awareness about diversity, student learning, and student success both inside and outside the classroom.
- Assess and develop undergraduates' skills for work and citizenship in a pluralistic democracy.
- Create the conditions for realizing the benefits of diversity in the learning process, including attention to the climate for diversity.
- Increase retention rates and also improve the assessment of retention on campuses around the country.

To achieve these objectives, we have worked to understand how the multiple contexts of higher education institutions impact student outcomes, taking care to measure various indicators of student success. An assessment tool was developed, followed by research that took place at fourteen institutions across the country (additional campuses heard about the instrument and joined the initial seven selected institutions to pilot test the instrument.) In addition, educators/researchers were invited to come to UCLA for intensive training in advanced research methods and climate assessment. The project was housed by UCLA's Higher Education Research Institute (HERI), and the research team employed a mixed methods approach to data collection, with 14 of the 15 campuses administering the DLE survey, and seven participating in site visits. Each campus had a liaison team that worked closely with the research team throughout their respective data collection phases. In return, participating

campuses received survey reports that could be disseminated to the campus community immediately, as well as student unit record data from the survey administration that could be analyzed at any time. The seven campuses that participated in the site visits also received a campus report of prominent themes that emerged from the visit, also useful for immediate dissemination. Representatives from each of the seven sites met at the end of data collection to share preliminary results, ask questions, and share practices with the research team that could inform other institutions in their organizational change efforts.

Early on, the research process included the development of a conceptual model and planted the seeds for a national retention study. The Multi-Contextual Model for Diverse Learning Environments (MMDLE) links campus climate for diversity to educational practices and learning outcomes for the 21st century, and is a tool that can guide researchers and practitioners who are engaging institutions in transformational change (Hurtado, Alvarez, Guillermo-Wann, Cuellar, & Arellano, 2012). The MMDLE guided the DLE survey development and site visits, and through the specification of key outcomes, informed the need to secure retention data for a national study. Specifically, the DLE project secured six years of data from the National Student Clearinghouse (NSC) and started exploratory analysis to dig deeper into the retention objectives of the DLE project. Importantly, the NSC data were matched to existing survey data from The Freshman Survey administered by HERI's Cooperative Institutional Research Program (CIRP). Together, the MMDLE and beginnings of the national retention study demonstrate the cohesive synergy of the DLE project that has allowed theory development to inform research as well as advance practical instruments to inform policy and practice.

The DLE project has generated tools for educators across the country to begin to assess their campus climates for diversity, educational practices, and democratic outcomes as well as achievement and retention. By studying and partnering with several broad access institutions, the project brings attention to these important institutions that until recently, have generally been overlooked in higher education research. These institutions need to be better understood not only because they have become the new norm in higher education, but also because they are crucial for national student success. The project's focus on equity across social identity

groups, in addition to the development of an inclusive climate, calls for higher education to be more than a place of equal opportunity but also a system that advances parity in outcomes for all students so that society may become a more just democracy. The DLE project identifies and illuminates the diverse learning environments that serve students and are most critical for achieving national success goals. ❖

Executive Summary of Findings

The United States has moved toward a system of mass higher education where the majority of high school graduates now elect to attend some type of postsecondary institution and learn in compositionally diverse environments; however, institutions that offer broad access typically have lower retention and graduation rates, which have been the focus of national initiatives to increase degree completion and accountability. Closing degree attainment gaps between racial and ethnic groups will be an important part of meeting national goals, but can be hampered by campus climate issues and discriminatory incidents that continue on campuses across the nation. American society not only needs more college graduates, but also for its graduates to reflect the diversity of the nation and embody a variety of multicultural competencies and habits of mind for effective leadership and lifelong learning. The Diverse Learning Environments (DLE) project addressed educators' needs in advancing the success of a diverse college student population. Guided by the development the Multi-Contextual Model for Diverse Learning Environments (MMDLE; Hurtado et al., 2012), the project focused on the interrelationships between the campus climate for diversity, educational practices, and a set of three educational outcomes needed to advance a more just and equitable society – equity in student achievement and retention, increases in the habits of mind for lifelong learning, and the development of multicultural and civic competencies. Employing a mixed methodology in a multiple case study design, we developed and piloted the DLE survey instrument at fourteen colleges and universities across the U.S., and conducted site visits at seven institutions. The study produced findings in several key areas:

The project focused on the interrelationships between the campus climate for diversity, educational practices, and three educational outcomes needed to advance a just and equitable society—student achievement and retention, habits of mind for lifelong learning, and civic competencies.

Retention and Degree Attainment

- Including institutional mission and accounting for the student body's social, economic, and psychological dynamics at college entry in assessing graduation prediction rates can improve four-, five-, and six- year graduation prediction accuracy by 53, 54, and 66 percent, respectively. Campuses are encouraged to use students' entering characteristics to assess actual vs. predicted graduation rates. In many cases, campuses are actually doing better than predicted, though the rates still need improvement for colleges that serve large numbers of low-income and first generation students. (See the full report on the HERI website http://heri.ucla.edu/DARCU/CompletingCollege2011.pdf).
- Divestment in higher education in the recent economic recession created barriers for students' academic success through cuts to support services and resources, reduced instructional time due to furloughs, fee increases, and decreased course availability that prolongs degree progress. Predictably, first-generation college students are the population most in need of support to complete. Additionally, about half of students who have transferred into four-year institutions felt lost, and a third felt excluded despite impressions that the administration cares about transfer students. Perhaps telling, nearly half of surveyed community college students preparing to transfer and transfer students at four-year institutions report that they had not participated in any pre-transfer program other than seeking assistance with university applications.
- Not surprisingly then, students and institutions evidence a normative culture of enrollment mobility, especially in larger cities where students have access to a greater number of higher education institutions. Students of color, low-income students, and less academically prepared students are overrepresented amongst mobility patterns that are detrimental to degree progress compared to white students, higher income students, and students with higher GPA's. Students' reasons for multi-institution enrollment include *cost/convenience* and *academic opportunities*; their reasons for stopping out at one or more institutions include *life circumstances*, *career considerations*, and *perceived mismatch with the institution*. Even so, in a difficult economic climate, students at broad access institutions continue to persist, mentioning

social mobility, feeling support and guidance, sense of belonging, and greater compositional diversity as reasons why they continue to stay enrolled. We recommend taking greater account of student mobility (and their reasons for multiple institutional attendance and stop-out) in order to channel students towards a degree through inter-institutional collaboration and shared resources.

- Trends on Latina/o entrants to four year colleges indicate: they are more likely to be first-generation college students than any other racial group; the income gap between non-Hispanic white and Latina/o parents increased four-fold over the decades; and declines in the percentage of students who report attending their first choice institution at college entry have been almost three times higher for Latina/os than non-Hispanic White students. The representation of Latino males at four year colleges has declined from a high of 57.4 percent in 1975 to 39.2 percent in 2006. Colleges should be attentive to these issues in Latina/o student retention efforts. (See the full report: http://www.heri.ucla.edu/PDFs/pubs/TFS/Special/Monographs/AdvancingInHigherEducation-LatinoTrends.pdf).

Campus Climate for Diversity

- Students continue to experience negative cross-racial interactions, discrimination and bias, and harassment along multiple social identities (e.g. race, class, gender, age, sexual orientation) but rarely report it to campus authorities. For example, students continue to experience differential campus climates by racial group, with African American students experiencing particularly hostile climates, expressing that racial stereotypes and stereotype threat are their greatest barriers to academic success. Additionally, Asian American and multiracially-identifying students indicate higher frequencies of discrimination and bias than some racial groups, contrary to common assumptions that these students may be exempt from discrimination, with double minority multiracial students indicating more frequent discrimination than their minority/white multiracial peers. Similarly, students of color perceive lower levels of academic and interpersonal validation than white students.

- However, underrepresented minority students experience less discrimination at more compositionally diverse college campuses. (See HERI Research Brief used in the amicus brief for *Fisher v. University of Texas* http://www.heri.ucla.edu/briefs/urmbrief.php). In addition, at campuses where institutional mission and action demonstrate a commitment to specific groups, and there is greater numerical representation, students from those respective groups report a relatively more inclusive climate (e.g. Latina/os at Hispanic Serving Institutions and Native Americans at an institution with a commitment to serving that population) compared to campuses that do not demonstrate such commitment. Additionally, higher student perceptions of institutional commitment to diversity are associated with lower reports of discrimination and bias. Furthermore, creating a more validating learning environment for Latina/o and African American students may also decrease the discrimination they experience, as we find that validation mediates the effects of a negative campus climate on students' sense of belonging in college.
- Above and beyond diverse representation, we found diversity practices impact multiple learning outcomes. Student interactions across difference via campus-facilitated practices can help cultivate interpersonal and academic validation, social identity awareness (salience), a host of civic outcomes, multicultural competencies, and habits of mind for lifelong learning. Educational practices include taking more courses as part of a curriculum of inclusion, an ethnic studies course, a women's studies course, studying abroad, and participation in co-curricular diversity activities, inclusive of racial/ethnic organizations. Students' scores for habits of mind are also significantly related to changes on civic outcomes, and students attending diverse institutions (with over 35 percent students of color) demonstrate higher scores on a pluralistic orientation scale.
- Additionally, social identity salience is related to several civic outcomes, multicultural competencies, and students' integration of learning. In a study of Latina/o students, marginalized identities are less salient with respective increases in representation on campus, but remain more salient than for other groups even when privileged identities

are in the numerical minority. Educators can create awareness about social identity and facilitate student identity development through educational practices.

- The multidimensionality of the campus climate for diversity theorized in existing models and the relationships between compositional diversity, psychological perceptions and behaviors were verified through empirical testing, and maintains utility across race and gender.

The DLE project builds upon previous research that highlights the educational benefits of diversity, and extends that knowledge into compositionally diverse broad access institutions, with an additional focus on college student retention and enrollment mobility. We begin to identify ways that compositional diversity contributes to a more positive campus climate for diversity, and extend research on educational practices in their relationship to the climate and student outcomes. Furthermore, the results showcase areas of success and challenge that institutions are facing as they pursue inclusive excellence, offering roadmaps to comparable campuses on a similar journey of institutional transformation. The results of this project support campus leaders, educational scholars, and policy makers in their efforts to improve graduation rates and cultivate thoughtful graduates who can effectively lead in our increasingly diverse society. Accordingly, broad access institutions may fulfill their role in the critical production of this nation's diverse college graduates and advancing equity.

Research results were disseminated to participating campuses. Additionally, presentations were made to over thirty national and international audiences, including policy makers, educational researchers, and college presidents. Many campuses have used the information for accreditation purposes, institutional transformation, and plan for regular assessment, with two of the pilot institutions having already administered the DLE survey a second time. Project papers and presentations are available at www.heri.ucla.edu/dle. ❖

Introduction

The challenge of higher education is to prepare graduates for a vision of the local and global society we aspire to become—one that is focused on advancing social progress and is equitable, interdependent, sustainable, innovative, and economically secure for the welfare of all.[1] This new vision of society calls for equipping diverse students with the values, skills, and knowledge to become complex thinkers and ethical decision-makers in a society currently plagued with conflict and inequality. It also calls for graduating greater proportions of students who have accessed higher education but are not completing. We must therefore assess where our students begin, how they grow and change, and how our educational practices contribute to undergraduate education goals that will achieve this vision. To simultaneously meet national goals of producing the most college graduates in the world, these endeavors are particularly important at broad access institutions that educate a majority of historically underrepresented students, but also have low persistence, retention, and graduation rates.

As postsecondary institutions enter this era of "evidence-based" practice, and take greater responsibility for monitoring student outcomes, we must aim to assess the context of diverse learning environments (often found in broad access institutions) that impact these outcomes. When we do not assess diverse learning environments, assessment instruments of student outcomes simply document the cycle of disparities in educational outcomes (traced back to preparation prior to college) without identifying areas for improving student learning and development. This is a disservice to students who have overcome significant obstacles and arrive at our doorsteps or "portals" to learn, and is notconstructive for the broad access institutions that educate them. Integrating assessments of student outcomes, the climate for diversity, and campus practices is a key strategy to ensure all students are well served to be successful graduates and to maximize the benefits of diverse learning environments for citizenship in a diverse society.

[1] The introductory section has previously been published in Hurtado, S. (2009). Assessing higher education' advancement toward a new vision of society. *Diversity & Democracy*, *12*(1), 1-3.

The Need for the Diverse Learning Environments Project

As part of an initial planning grant, we reviewed higher education literature, which included over ninety instruments used by college campuses, to determine how institutions were assessing outcomes, practices, and the climate for diversity (Hurtado et al., 2008). We found that the growing literature on the benefits of diverse learning environments is largely based on instruments that incorporate measures of campus climate for diversity, as well as value-added change in students' skills, dispositions, and outcomes associated with citizenship in a multicultural society. Higher education as a whole has been able to learn more about the conditions that maximize the benefits of diverse learning environments through longitudinal assessments (e.g. The Michigan Student Study and UCLA's Cooperative Institutional Research Program, CIRP) that capture how students experience the climate regarding intergroup relations and measure changes on a range of values, skills, and knowledge. The research is beginning to converge around several key findings.

First, students must engage with diverse peers in order to achieve change in a wide range of outcomes, which is reliant upon a diverse student body to increase the probability that students will have more contact opportunities. Studies now distinguish between informal interactions, campus-facilitated interactions, and the frequency and quality of interactions. More recently, studies have examined the perpetuation of interaction patterns acquired before college, which highlights the importance of campus practices that will disrupt previous habits and routines in order to create new learning opportunities across differences. Further efforts to assess the behavioral dimension of the climate must extend beyond race and ethnicity to include multiple communities and social identities, which the DLE project began to do.

Second, a substantial body of literature continues to show how a hostile or discriminatory psychological climate negatively impacts students' transition to college and sense of attachment to the institution (Cabrera, Nora, Terenzini, Pascarella, & Hagadorn, 1999; Hurtado, Milem, Clayton-Pederson, & Allen, 1999). Research has established that perceptions of a hostile climate are associated with a lower sense of belonging among both students of color and white students, in addition to informing how successful students of color feel in managing the academic environment in the first year of college (Locks, Hurtado, Bowman, &

Oseguera, 2008; Hurtado, Han, Sáenz, Espinosa, Cabrera, & Cerna, 2007). Nora, Barlow, and Crisp (2005) introduced a new model of student integration that includes student perceptions of the campus climate, sense of belonging, validating experiences from faculty and peers, family support and environmental pull factors, financial assistance/need, academic development, and interactions in the social and academic environment. In effect, they have extended the integration concepts of Tinto's (1975, 1993) model of student departure based on research on minority, low-income, and non-traditional students that document psychological, behavioral, and environmental factors that influence persistence in college. Research on persistence in science is also extending its reach to tap into factors such as competencies and self-efficacy, performance, and recognition from significant others in the science identity development models based on underrepresented students (Hurtado, Cabrera, Lin, Arellano, & Espinosa, 2009). These studies and new models highlight the social and psychological context for learning, retention, and success among students of color.

Third, we found that research on many specific diversity-related initiatives is lacking. However, the areas of campus practice with substantial or developing research based on large-scale studies include the integration of diversity in the curriculum, co-curricular programs such as intergroup dialogue, and integrative learning initiatives in the form of service-learning, living-learning programs, and undergraduate research programs that target underrepresented groups. The good news is that these are widely-used practices and educators can use the research to inform their work. However, many practices still lack research. With few exceptions, it appears that educators extensively engaged in practice do not have the time to write about or conduct research on their programs or practices. It is also an indication of how we have "compartmentalized" our assessments on campus by employing specific instruments to assess the climate, another set of instruments to assess student outcomes, and still another set of approaches to evaluate specific practices. More directed research is needed about who gains access to program resources, whether program impact is evident on multiple outcomes associated with goals for undergraduate education, what instructors do in diverse classrooms, and if best practices can be "scaled up." Otherwise, specific programs will continue to operate

as oases for students in institutional environments that remain largely resistant to institutional transformation.

In reviewing student outcomes, there are volumes that have been produced dating back to the 1960s when the national agenda first focused on investment in postsecondary education and periodically demanded more accountability (Feldman & Newcomb, 1969; Bowen, 1977; Pascarella & Terenzini, 1991; 2005). Multiple frameworks of college outcomes exist that are intended areas of evidence for the chief benefits of college. In short, there is ample evidence to conclude that both individuals and society benefit in a myriad of ways from attending college. What distinguishes the current accountability movement is an interest in standardization of outcomes in order to distinguish between institutions along key dimensions intended as "indicators of quality" and these assessments are currently far removed from teaching and learning that occurs in classrooms. What complicates current assessment and reporting efforts is that goals for undergraduate education are determined by faculty on a campus (and include a wider range of competencies and values that may be unique to a campus), many diverse campuses face a high degree of student enrollment mobility (e.g. transfers in and out, dual enrollment, etc.), and comparisons often ignore the stratification of students and resources across institutions. The climate also impacts student assessment—the more marginalized students feel, or ambivalent about the value of the assessment activity, the less likely students will participate in assessments.

Accordingly, it is important for diverse broad access institutions to document how they are making a difference in terms of student talent development, particularly in the context of budget constraints and demands for accountability. Further emphasis has been needed on the interrelationship of these outcomes and their relationship with the educational environment. Campuses already have a vast amount of empirical information to guide practice but nothing can replace critical self-assessment to deepen the campus commitment to diversity and learning. Integrating assessments of outcomes, educational practices, and the climate can address the pressures that campuses face in producing evidence about student learning, increasing retention rates, accounting for internal and external factors that affect student achievement, as well as attending to the psychosocial well-being of students. Campuses intent

on the development of the "whole" student and students' ability to become competent multicultural citizens will also contribute to higher education's mission to advance social progress in the next generation.

However, although many assessments remain fragmented, at the same time, institutions and public systems increasingly rely on data to determine next steps in terms of policy. Reform agendas and even legal battles are driven now by sophisticated analyses of data in many areas that affect student access, financial aid, and student performance. Many initiatives are met with resistance to providing aid for low-income students, increasing access to elite institutions, and even have contested the need to educate "the whole" student. More knowledgeable and well-trained individuals intent on balancing equity with other priorities, and advancing the progress of students from underserved communities, are needed at the policy level to offer rigorous analyses that can adequately address key social and educational gaps. These experts should strive to push the boundaries of the status quo and ask critical questions, effectively using quantitative data to activate policy levers that will advance the vision of an equitable society, some of whom were developed through the project activities. The DLE project sought to address the key areas of climate, practices, and outcomes through assessment development and policy-minded training in research to advance diversity and equity in higher education through five core project activities.

Project Activities

The Diverse Learning Environments (DLE) project embarked on a set of research and practice initiatives to address equity, diversity, and educational outcomes at multiple levels of analysis. At the national level, the project employed training for research in techniques that can affect policy decisions. In addition, multi-institutional comparison data from pilot institutions (including broad access campuses), as well as national comparison data, was generated over the life of the project. Diverse learning environments were assessed at the institutional and student levels. Embedded in the development of each initiative were explicit ways to "scale up" the work so that many more researchers, educators, and institutions can become engaged in maximizing the conditions for learning in diverse environments. All

activities were connected to research for the improvement of practices that advance student success.

Survey of Diverse Learning Environments (DLE)

Perhaps the greatest accomplishment of this project has been the creation of the DLE survey, a new instrument designed to assess campus climate, educational practices, and a set of outcomes focused on retention and citizenship in a multicultural society that can be used in tandem with other assessments on campus. We have since piloted, revised, and nationally launched the DLE through the Cooperative Institutional Research Program (CIRP), housed within HERI at UCLA. Fourteen campuses participated in the pilot administration, the data from which are a principal focus of this report. Key features of the DLE survey include that it is:

- A nationally available CIRP survey
- An integrated assessment of campus climate, diversity practices, and outcomes
- Inclusive of diverse social identities
- Longitudinal when linked with other student data (e.g. CIRP surveys, registrar data, etc.)
- Contains optional modules targeting specific topics

Through the DLE survey, campuses get a pulse on students surrounding a range of issues by tapping into psychosocial experiences, behaviors, values, self-assessments, and responses to their diverse environments.

The DLE survey assesses several key outcomes we identify as critical for student success in the twenty-first century, and fall into the categories of habits of mind and skills for lifelong learning, multicultural competencies, and student achievement and retention (Hurtado et al., 2012). Specifically, habits of mind for life-long learning consist of behaviors students employ to facilitate their own learning. Such skills include asking questions, seeking academic feedback on their own work, and seeking alternate solutions to a problem, many of which can be taught or reinforced both in and outside of the classroom. These measures had previously been tested at public universities and this project extends the research on these skills to broad access institutions. Multicultural competencies include such outcomes as a pluralistic orientation (cognitive and communication skills necessary for a diverse workplace), civic engagement (demonstrated behavior in engaging in civic activity), as well as a new factor measuring critical

consciousness and action (engaging self and others around social issues). Retention and student achievement outcomes are measured on the survey by way of student self-reports of various forms of enrollment mobility, reasons why they engaged in such enrollment, and academic achievement; these should ideally be combined with registrar data to analyze student retention and persistence, and/or be considered in light of National Student Clearinghouse (NSC) data, discussed momentarily. The focus on these three areas for student outcomes allows educators to link these aspects of student success with climate and educational practices, both at their local campuses and nationally.

Ultimately, the national launch of the DLE survey represents the impact of this project and is feasibly its greatest contribution to the field of higher education research and practice. The DLE instrument was made available by CIRP in fall 2010 on the heels of many racial and other social identity-based incidents on college campuses across the nation. The national launch retained the factors, themes, and modules detailed in this report, as well as its utility for two- and four-year institutions. Although climate can be assessed at any time, HERI recommends the assessment to occur every three to five years to capture change over time as students move through each campus. Details on the DLE survey and current registration cycles can be found at www.heri.ucla.edu.

Campus Case Studies

In order to get a better handle on the environments, practices, and policies of broad access institutions, the research team conducted site visits to seven campuses in conjunction with an appointed campus liaison team. An inventory of campus practices was taken, administrators were interviewed, and focus groups were conducted with practitioners and students. The case studies provided a deeper understanding of the institutional context and have allowed us to understand key challenges and strategies institutions employ in serving a diverse student population and ensuring their success. Reports were created to provide feedback to each campus individually (Appendix E). Subsequent study has begun a cross-case analysis of the data from these institutions.

Institute for Critical Analysis of Quantitative Data

To equip researchers with new quantitative tools for addressing campus climate and equity issues in higher education, the team hosted an Institute for Critical Analysis of Quantitative Data. Current debates in higher education hinge on analysis of such data, and states are increasingly calling for integrative databases that include links between K-12 and higher education in order to follow student achievement to study key areas such as admissions, remediation, financial aid, and assessment of outcomes. Many state reports show equity gaps of enormous magnitude that now portend dire economic implications for states with large and growing underrepresented populations (Santos, Metcalfe, Guillen, & Rhodes, 2006). Each of these areas holds strong implications for student preparation, access, affordability, and achievement, and most recently, debates have ensued regarding whether and how to target initiatives to underrepresented populations. Advanced and more sophisticated techniques require a trained force of individuals who can use data to represent educational processes and outcomes on a large scale to identify inequities and at the same time question traditional models and practices to shape the policy discussion and offer new solutions.

Therefore, the goal of the Institute was to train a new cadre of individuals who can become experts in analyzing data for solutions that will ultimately advance student success. Two annual quantitative institutes were held by HERI in conjunction with USC, each lasting three consecutive days. The Institute offered workshops in several new techniques designed to get at modeling educational processes (structural equation modeling), assessing the impact of multiple institutions and classrooms (hierarchical linear modeling), as well as new designs to answer the question of whether particular environments or interventions (such as financial aid awards) make a difference for similarly positioned students (race/ethnicity, gender, low-income status). Social network analysis was also introduced the final year, with a group of scholars meeting regularly at national conferences to advance research using this technique. These institutes served 32 young scholars and junior faculty from across the country; participants had the opportunity to engage and learn from one another as well as from the expert instructors. It is clear from the evaluations that both institutes supported participants' work and enhanced

their ability to conduct research around issues of diversity and equity in higher education with an application of advanced methods on policy related research.

Diversity Research Institute

A major goal of the DLE project was to work with postsecondary educators to train and support them in diversity related work at various campuses. As campuses aimed to improve learning conditions in diverse environments, we began to fill a need for in-depth training of administrators and practitioners in the most current models and research pertaining to campus climate for diversity and institutional transformation through the Diversity Research Institute (DRI). In a two-day intensive workshop in each of five summers, liaison teams from campuses across the country came to UCLA to learn relevant trends in related research, and develop insights into how research can inform related practices on their campuses. In 2008, 34 individuals attended, 33 attended in 2009. In 2010, a record number exceeding 65 high level administrators and diversity officers attended the DRI, which we limited to 50 in 2011. Another 36 participants were in engaged in diversity research discussions in 2012. As institutions sign up for 2013, over 212 educators and counting have participated in the Institute. The DRI allowed teams the opportunity to network and collaborate with one another, as well as learn relevant trends in diversity research, and insights as to how research can inform diversity-related practices. Additionally, data collected from the DLE project was used to expand the knowledge and awareness of practitioners about diversity trends. Feedback from participants demonstrates that the DRI has had tangible impacts on the work done at their campuses. Participants are engaging in more campus climate assessments, embarking on intergroup relations dialogue projects, and working to transform institutional cultures to be more accepting of diversity. The DRI has become a self-sustaining institute administered by HERI at UCLA.

National Retention Study

The National Student Clearinghouse (NSC) provided student enrollment and degree completion data matched with 330 institutions that participated in HERI's national surveys, consisting of low/medium selectivity institutions and community colleges. The HERI data allow us to identify institutions that have large numbers of low-income, first generation, and

underrepresented students, and match their psychosocial survey data with term-to-term enrollment over a period of six years. Together these data have allowed us to begin to 1) provide a national backdrop for pilot institutions struggling with the issues of retention, 2) study student mobility patterns since the Clearinghouse data is the only source of information about where students enroll after leaving an institution, and 3) generate prediction equations that institutional researchers can use to estimate their own retention rates to determine the characteristics of students they admit and whether they are above or below expected averages (See DeAngelo, Franke, Hurtado, Pryo, & Tran, 2011) . This is a significant improvement over accountability reports of retention rates that penalize institutions for engaging in "talent development" instead of "harvesting" only the best students. At last, we have begun to identify issues of student mobility to better understand this phenomenon that affects degree attainment. The DLE instrument taps into why these students attend multiple institutions, stop-out, or intend to transfer/drop-out, while the Clearinghouse information provides exact information about this student behavior. These patterns can now additionally be studied in relation to the plethora of psychosocial data collected through HERI's surveys.

Retention Persistence Institute

In 2011, after the release of the report of the national retention study, we began a new summer institute focused on student retention and persistence in order to educate college institutional researchers and individuals charged with improving retention on college campuses. In summer 2011, 20 participants were engaged in learning and planning retention activities and in summer 2012, 32 participants were enrolled. Several campuses brought teams to aid their planning and get on the same page regarding the latest retention research. Summer 2013 promises to be the largest group yet, with a group of Hispanic-serving institutions planning to enroll.

Multi-Contextual Model for Diverse Learning Environments

We addressed the need for new models for diverse learning environments by developing and using the Multi-Contextual Model for Diverse Learning Environments (MMDLE)

over the course of the project (Hurtadoet al, 2012). The MMDLE draws from converging areas of scholarship on diversity dynamics in higher education and explores how the different aspects of an institution, including the campus climate for diversity, influence important student success outcomes that lead to social transformation for a just society. Over the course of the project, we frequently solicited feedback from practitioners in the field regarding its applicability. The MMDLE serves to guide research and practice in creating the conditions for student success in diverse learning environments.

The guiding model for the project (Appendix A) illustrates five levels of context that influence student outcomes, including the socio-historical context, the larger policy environment, the community context and students' commitments external to the institution, the institutional context, and the classroom and co-curricular learning environments. All five levels are intended to produce the three types of outcomes: 1) habits of mind for lifelong learning, 2) values, skills, and knowledge for a multicultural society, and 3) retention and achievement. Although the policy environment is concerned with these outcomes given the current focus on accountability, the discourse is often driven by a single set of indicators that are ill-equipped to measure the variety of outcomes necessary for citizenship in a new society; we determined that this set of outcomes is particularly relevant for the current context, but may also change over time. Considering the diversity of learning environments, the MMDLE places students and their multiple social identities at the center of educational contexts, which also include the social identities of faculty, staff, and campus administration. The model highlights the interactive dynamics within these areas of campus life and educational practice, and illustrates how they are related to campus climate and student outcomes. We hoped to renew a focus on these outcomes and determine how campuses are accomplishing these goals in undergraduate education.

Following this theoretical premise, analysis was conducted using cross-sectional data from the DLE pilot survey and campus case studies, and longitudinal analysis with additional data sets. Results from major project papers, publications, and reports are detailed in the subsequent sections. We have continued to present and disseminate project-wide findings to national audiences and remain engaged in further data analysis. ❖

SECTION I. The DLE Survey: Measuring Campus Climate, Diversity Practices, and Student Outcomes

A primary contribution of this project was the development of the Diverse Learning Environments (DLE) survey that resulted in national availability of an instrument measuring campus climate for diversity, educational practices, and student outcomes. Principal goals in the development of the DLE survey were to 1) provide a nationally comparative climate instrument, 2) extend the use of existing measures to more diverse students in broad access institutions, and 3) to develop new constructs for understanding the impact of diverse learning environments. The pilot survey was developed reviewing over ninety surveys (Hurtado et al., 2008), many of which informed the DLE content, and instrument tests with student focus groups at two and four year colleges. A total of eight existing factors were validated for their reliability on diverse students in diverse institutions, with 33 new factors and six themes developed uniquely for the DLE instrument, many of which were validated and presented at the Diversity Research Institute (Hurtado, Arellano, Cuellar, & Guillermo-Wann, 2010). The DLE survey aimed to measure key concepts in the MMDLE conceptual model (Appendix A; Hurtado et al., 2012), which were identified in the data through exploratory and confirmatory factor analysis (see Appendix B for project methods). As intended, the constructs include climate measures, practices, and outcomes, as well as one pre-college factor measuring the source of knowledge about diverse groups (see Appendix C). This section provides a description of the validated factors as well as item themes on the survey. Several factors and themes were placed in optional survey modules to reduce the survey length, and are presented after the core survey measures; specific survey items, standardized factor loadings, factor reliability, and fit indices are listed in Appendices B and C, respectively.

Core Survey: Factors and Themes

Campus Climate

Over the course of the project, the research team concluded that there was a general campus climate distinct from a climate for diversity, both from the extant literature as reviewed

in the development of the MMDLE (Hurtadoet al., 2012), and in the emergence of research findings within the project (e.g. Hurtado, Cuellar, Guillermo-Wann, & Velasco, 2010; Hurtado, Ruiz Alvarado, & Guillermo-Wann, in review). Campus climate measures were thereby divided into climate for diversity and a more general climate, and are discussed accordingly. The DLE includes seven factors measuring campus climate for diversity, and six measuring a general climate.

The Climate for Diversity

Factors measuring campus climate for diversity fit into three of the five dimensions of climate as items pertain explicitly to diversity matters. These include the psychological dimension, behavioral dimension (Hurtado, Milem, Clayton-Pedersen, & Allen, 1998, 1999), and organizational dimension of campus climate (Milem, Chang, & Antonio, 2005). The historical dimension measures an institution's historical legacy of inclusion or exclusion (Hurtado et al., 1998, 1999), and compositional diversity measures the numerical representation of various social identity groups in the student body, staff, and faculty, and are therefore difficult to assess through survey research. The DLE factors measuring campus climate for diversity include: *Conversations Across Difference* (behavioral), *Discrimination and Bias* (behavioral), *Harassment* (behavioral), *Institutional Commitment to Diversity* (psychological/organizational), *Negative Cross-Racial Interaction* (behavioral), *Positive Cross-Racial Interaction* (behavioral), and *Satisfaction with the Campus Climate for Diversity* (psychological). All factors are new to the DLE with the exception of *Negative and Positive Cross-Racial Interactions*, which are CIRP constructs (CIRP, 2011) replicated from the Diverse and Democracy Project (Hurtado, 2003;2005) and the Michigan Student Study. Many factors have origins in a multitude of surveys, as reviewed for survey development (Hurtado et al., 2008). Below is a short description of each factor in alphabetical order:

- *Conversations Across Difference*: Measures how often students have in-depth conversations with diverse peers and about diversity.
- *Discrimination and Bias*: Measures the frequency of students' experiences with more subtle forms of discrimination.
- *Harassment*: Measures the frequency that students experience threats or harassment.

- *Institutional Commitment to Diversity*: Measures a student's perception of the campus' commitment to diversity.
- *Negative Cross-Racial Interaction*: A unified measure of students' level of negative interaction with diverse peers.
- *Positive Cross-Racial Interaction*: A unified measure of students' level of positive interaction with diverse peers.
- *Satisfaction with the Campus Climate for Diversity*: Measures students' level of satisfaction with the campus climate for diverse perspectives.

The General Climate and Psychological Processes

The general climate does not explicitly measure matters of diversity, but can be examined for inequity across social identity groups for critical analysis, much like educational outcomes are often examined for group differences. The DLE factors measuring a general campus climate include: Academic Validation in the Classroom, General Interpersonal Validation, Sense of Belonging, and Student Financial Difficulty. With the exception of the latter, these can also be understood as psychological processes that occur within the institutional context. An additional two factors measuring Social Identity Salience (visible and potentially invisible types of social identity) are not measures of the climate itself but capture diversity in college environments that is closely tied to the climate by way of psychological processes. Student identity is at the center of the MMDLE, and these measures developed specifically for the DLE with origins in the literature (MIGR, 2008) capture how salient identity is for different groups. All factors are new to the DLE with the exception of Sense of Belonging, which is a CIRP construct (CIRP, 2011) well established in the literature (e.g. Bollen & Hoyle, 1990; Hurtado & Carter, 1997), with the two validation factors developed for the DLE based upon Laura Rendón's (1994) theory of validation. They are listed in alphabetical order with a description of each construct:

- *Academic Validation in the Classroom*: Measures the extents to which student views of faculty actions in class reflect concern for their academic success.
- *General Interpersonal Validation*: A unified measure of students' view of faculty and staff's attention to their development.

- *Social Identity Salience (Visible):* Measures how often students think about their race, class, gender, and age.
- *Social Identity Salience (Possibly Invisible):* Measures how often students think about their dis/ability status, sexual orientation, citizenship status, and religious/spiritual beliefs.
- *Sense of Belonging*: Measures the extent to which students feel a psychological sense of integration on campus.
- *Student Financial Difficulty*: A unified measure of students' level of financial concerns.

Diversity Practices

Two factors measure campus practices, which might also be understood as aspects of the behavioral and organizational dimensions of campus climate (Hurtadoet al., 2012; Arellano, Guillermo-Wann, Cuellar, Hurtado, Johnson-Ahorlu, & Alvarez, 2011); they measure student participation in a Curriculum of Inclusion and campus-facilitated Co-Curricular Diversity Activities, and are listed and described below. Both factors are new constructs unique to the DLE, and were important to develop given that previous research using single-item measures indicated such practices influence a host of democratic outcomes important for effective participation and leadership in a diverse democracy (Hurtado, 2003).

- *Co-Curricular Diversity Activities (Campus-Facilitated)*: A measure of students' involvement with institutional programs focused on diversity issues.
- *Curriculum of Inclusion*: Measures the number of courses a student has taken that include materials and pedagogy addressing diversity.

Additionally, a number of single-item measures retained in the core survey also probe student involvement in campus practices, but do not represent themes nor constitute factors in the way these two factors measure distinct concepts.

Student Outcomes

Following the MMDLE conceptual framework, student outcomes of interest fall into three broad areas: Habits of Mind for Lifelong Learning, Multicultural Competencies, and Retention/Achievement (Hurtadoet al., 2012), and are discussed accordingly. Of the eleven

factors measuring outcomes on the DLE, six are newly developed, and in addition there are also six new themes.

Habits of Mind for Lifelong Learning

Under this first outcomes area are factors measuring Habits of Mind and Integration of Learning. The concepts have been used in previous research, but until this project, had not yet been validated in such a diverse sample of students and institutions. The items used in the DLE are specific to CIRP constructs, with Integration of Learning being a new DLE factor (CIRP, 2011; Hurtado, Ruiz, & Whang, 2012).

- *Habits of Mind*: A unified measure of behaviors and traits associated with academic success. These behaviors are seen as the foundation for lifelong learning.
- *Integration of Learning*: A measure of student behavior that reflects integrating, connecting, and applying concepts and ideas.

Multicultural and Civic Competencies

The second outcomes area in the MMDLE is students' development of multicultural competencies for leadership in our increasingly diverse society (Hurtado et al., 2012). The DLE factors measuring these competencies include Anticipated Involvement in Redressing Social Inequalities, Civic Engagement, Critical Consciousness and Action, and Pluralistic Orientation. Critical Consciousness and Action was developed specifically for the DLE, with origins in the literature (e.g. Freire, 1973; hooks, 1994). The remaining factors have been established as CIRP constructs (CIRP, 2011) or have been used in additional research (e.g. MIGR, 2008), and through the DLE have been validated for use with more diverse students and institutional contexts.

- *Anticipated Involvement in Redressing Social Inequalities*: Measures the level of importance to students of engaging in social, political, economic, racial/ethnic, and gender issues in society.
- *Civic Engagement*: Measures the frequency in which students engaged in civic issues at the local, state, or national level.
- *Critical Consciousness and Action*: A unified measure of how often students critically examine and challenge their own and others' biases.

- *Pluralistic Orientation*: Measures skills and dispositions appropriate for living and working in a diverse society.

An important theme that remains in the survey assesses students' awareness of privilege:

- *Awareness of Privilege*: These items illustrate the extent to which students are conscious of their many social identities and the power afforded them in society.

This theme was incorporated into the DLE given the growing body of literature on developing awareness of multiple social identities and related privilege and oppression through higher education (e.g. Adams, Bell, & Griffin, 1997; MIGR, 2008). In sum, these factors and themes on the DLE survey begin to tap into much needed multicultural and civic competencies that can be developed in diverse learning environments.

Retention/Achievement

The final outcomes area in the DLE survey includes college student retention and achievement measures. Such outcomes are typically evaluated through campus- or national-based retention data, but on the DLE survey are assessed through self-reported college GPA and a number of questions probing types of enrollment mobility and students' reasons for student transfer, stop-out or concurrent enrollment. The identified mobility factors include multi-institution enrollment due to *Cost/Convenience* and *Academic Opportunities*, and stop-out from one or more institutions due to *Life Circumstances*, *Career Considerations*, and *Perceived Mismatch* (Guillermo-Wann, Hurtado, & Alvarez, 2013). The factors derive from single-item questions from extant research on enrollment mobility (e.g. Adelman, 2006; HERI, 1991; Peter & Cataldi, 2005), but are new as factors in the DLE survey. They represent an innovative approach to measuring retention and achievement in the era of mass higher education, particularly for institutions whose retention rates remain stagnantly low. A description of these concepts follows in alphabetical order:

- *Multi-institution Enrollment – Academic Opportunities:* Measures how important gaining access to courses not available at students' current institution is in attending additional institutions.

- *Multi-institution Enrollment – Cost/Convenience:* Measures how important completing a degree more quickly and having less expensive tuition are for taking courses at an additional institution.
- *Stop-out Reason – Career Considerations:* Measures how important students' reconsideration of career goals and interests is to their decision to withdraw, transfer, or take a leave of absence.
- *Stop-out Reason –Life Circumstances:* Measures how important demanding life circumstances, such as family responsibilities or financial difficulty, are to students' decision to withdraw, transfer, or take a leave of absence.
- *Stop-out Reason – Perceived Mismatch:* Measures how important social and academic mismatch are to students' decision to withdraw, transfer, or take a leave of absence.

In addition, several themes related to achievement and retention were retained in the survey:

- *Navigational Action*: Items measure how often students participated in institutional programs or engaged in activities that would help them navigate the institution.
- *Navigational Capital*: These items measure the extent to which students rely on various on-and-off campus constituents as sources of support in order to succeed in college.
- *Push/Pull Influences*: These items demonstrate the external factors (e.g. work, family) that positively or negatively influence students' college experience.
- *Student Enrollment Mobility*: These items measure whether or not a student has engaged in or considered enrollment at another institution and the respective institutional type.
- *Support-Seeking Behavior:* These items measure the frequency in which students utilized a variety of academic and personal support services on campus and online.

The factors and themes measuring campus climate for diversity, educational practices, and student outcomes reviewed in this section are embedded into the core DLE survey, most of which are automatically included in CIRP DLE reports of data to individual campuses. Next, we turn attention to the factors featured in the optional DLE modules.

Modules: Factors and Themes

The research team created optional modules that assess additional aspects of the DLE conceptual model that were unable to be included in the core survey due to space limitations for the national launch. The modular nature does not indicate a lesser degree of importance, but rather was selected for these topics because they may not directly pertain to all student groups, campuses, or reflect a more specific focus than broad campus experiences. The modules include Classroom Climate, Community College Students' Transfer Pathway, Intergroup Relations, Transition Experiences for Transfer Students at 4-year Institutions, and Transition into Major, and have a total of fourteen new factors. The following discussion of each module includes their respective factors, if applicable.

Classroom Climate

The Classroom Climate module gathers information about the climate for diversity in classrooms at an institution. It examines issues of inclusive pedagogy, student centeredness, and learning outcomes. The module includes two factors, one measuring climate and the other a multicultural competency, developed from the literature (e.g. Marchesani & Adams, 1992; MIGR, 2008):

- *Applying Knowledge to Societal Challenges:* Measures students' interest in applying concepts from class to challenges facing society.
- *Faculty Create a Positive Climate:* Measures students' perceptions of the extent to which faculty effectively engage students across difference in class.

Community College Students' Transfer Pathway

This module assesses community college students' behaviors and perceptions of their pre-transfer experience en route to a four-year institution, and is designed for administration only at community colleges. The factors include measures of Institutional Transfer Culture, Navigational Barriers, and Navigating Transfer Preparation. The factor measuring transfer culture is newly developed for the DLE, and derives from the qualitative research conducted by Ornelas and Solórzano (2004) on Latina/o community college students. Other factors contain concepts or select items with origins in the Community College Survey of Student Engagement

(CCSSE) developed by the Center for Community College Engagement at the University of Texas at Austin, Linda Hagedorn's (2002) *Transfer and Retention of Urban Community College Students (TRUCCS)* project, and a special issue of *New Directions for Community Colleges* on the preparedness of community colleges for underprepared students (Scheutz & Barr, 2008). The three identified factors are:

- *Institutional Transfer Culture:* A cohesive measure of a strong transfer culture at students' community college.
- *Navigational Barriers:* Measures difficulty students face navigating institutional and personal barriers to academic progress since entering their community college.
- *Navigating Transfer Preparation:* Measures how often students utilized various sources of pre-transfer preparation.

Intergroup Relations

This module gathers information about students' intergroup relations, focusing on issues of race and ethnicity, aversion to conflict, as well as social justice actions. The pilot survey experimented with various single items from a number of established factors (MIGR, 2008) to see if any "summarizing" factors might exist. Unfortunately, no cohesive factors emerged in the pilot data. This may have been due to a small number of cases that completed this module; further testing must be examined in the revised module from subsequent national launches. Nonetheless, this module has the first set of questions specific to intergroup relations and practice to be included in a national launch and provides useful information to campuses through the single item measures to get a pulse on this aspect of campus climate for diversity.

Transition Experiences for Transfer Students at 4-year Institutions

This module assesses transfer-related experiences of students who have already transferred to their current four-year institution from another college or university, and is designed for administration only at four-year institutions. The concepts covered in this module include student's perceptions of Pre- and Post-Transfer Institutional Support, as well as post-transfer measures for Academic Adjustment and Navigational Ease. A number concepts and items were modified from previous research on transfer students (e.g. Berger & Malaney, 2003; Keup, 2006; Lanaan, 1996). The factors are:

- *Pre-Transfer Institutional Support:* Measures the extent to which transfer students agree the transfer preparation process was easily navigable and supportive.
- *Post-Transfer Academic Adjustment:* Measures how easy it is for transfer students to adjust to and manage academic demands with other responsibilities.
- *Post-Transfer Institutional Support:* Measures students' perceptions of campus supportiveness for transfer students.
- *Post-Transfer Navigational Ease:* Measures how easy it is for transfer students to learn about and access academic and social support on campus.

Transition into Major

This module gathers information about students' experiences in their major(s), including the barriers and challenges, the climate in their major, and possible reasons for a change in major(s). This module also captures students who are undecided, focusing on reasons why they have not yet declared a major. It draws upon extant literature and assessments (e.g. Dressel & Simpson, 1980; UNC Charlotte Sophomore Survey, 2004), The factors include:

- *Difficulty in Accessing Desired Major:* Measures barriers to accessing desired major and consideration of pursuing the major elsewhere.
- *Institutional Support for Choosing a Major:* Measures student perceptions that the institution provides easily accessible and useful information and advising to help students choose a major.
- *Positive Major Climate:* Measures a climate fostering inclusive excellence.
- *Previous Major Too Competitive:* Measures the extent to which students agree that their previous major was too competitive, difficult, time consuming, and inaccessible course and materials.

Conclusion

As intended, the process of validating constructs yielded numerous factors and themes measuring campus climate, practices, and outcomes in the core survey and optional modules. Ultimately, the DLE survey instrument is an assessment tool that allows campuses to monitor not only their own climate, but to compare their snapshots with similar institution types across

the nation. Such cross-institutional comparison can serve as a litmus test for how individual campuses are doing within the broader higher education context. In addition, institutions may see how they fare with institution types that may be competing with them for diverse students, or who share mobile students, and pinpoint areas of relative strength, weakness, and for improvement. National assessment also allows researchers to examine trends in climate across institutions and time, and uncover broad patterns in climate, practices, and outcomes for students in diverse learning environments across the country. ❖

SECTION II. Campus Climate in Diverse Learning Environments: Moving Beyond Compositional Diversity Towards Inclusive Excellence

We developed a national climate instrument to assess campus climate, practices, and outcomes in more compositionally diverse learning environments, as previous research had primarily examined student experiences in predominantly white institutions. The assessment of climate in broad access institutions presents an opportunity to understand campus climate where compositional diversity, as a necessary but insufficient step towards developing an inclusive learning environment (Gurin, Dey, Hurtado, & Gurin, 2002), is a less pressing issue than at predominantly white institutions. That is, campuses that have already achieved a diverse student body have many assets and challenges in their learning environments. This section of the report features the results of seven select studies - four papers, one trends report, and two presentations to pilot institutions, augmented by additional analysis from the case studies. These findings specific to campus climate for diversity provide a background for understanding issues of students' multiple social identities and students' psychological processes, as well as learning outcomes discussed in sections III and IV, respectively.

In the first study, *Validating the multidimensionality of the campus climate for diversity* (Arellano et al., 2011) we develop a latent variable model of the campus climate for diversity. Select factors from the DLE survey representing the psychological, behavioral, and organizational dimensions are paired with a measure of compositional diversity, mapping four of the five campus climate dimensions in relation to one another for the first time. This study demonstrates:

- The multidimensionality of the campus climate for diversity through structural equation modeling.
- There are minimal measurement differences between students of color and white students, and between male and female students, validating the use of DLE factors in a multidimensional climate model.

This study lays the foundation for further climate research using the DLE instrument, and empirically establishes the multidimensionality of the theoretical framework, highlighting that campuses can disentangle, assess, and improve specific dimensions on the ground level.

Presented here as the second study given its focus on compositional diversity, the project also produced the first trends report on Latina/o first-year college students at four-year institutions over a thirty-year period using data from CIRP's Freshman Survey from 1975 and 2006 (Hurtado, Sáenz, Santos, & Cabrera, 2008). Importantly, the report is also the first of its kind to disaggregate findings into Mexican American/Chicano, Puerto Rican, and Other Latina/o groups as well as by gender. It compliments two previous HERI reports commissioned by the Director of HERI on African American and Asian American college freshmen. Although the Latina/o report shows that Latina/o enrollment grew from 1.2 percent to 8.2 percent of all college freshmen, improving representation in college compared to its proportion of the national population, it also reveals disconcerting trends that demand attention in research, policy, and practice as they pertain to the compositional diversity of colleges and universities. At the forefront of these concerns is that the economic disparities between Latina/o and non-Hispanic white students have quadrupled over the decades and contribute to financial concerns. Latina/os have a higher academic drive to achieve, focus on family values, and not surprisingly, a need for financial security. Other key findings include the decline of male Latinos entering four-year institutions which is most stark for Mexican American males, that Latina/os continue to have the lowest parental education levels of all entering freshmen, that non-citizen and English language learners are not increasing in college representation, that Latina/os demonstrate a strong drive to achieve substantiated by higher hours per week reported doing homework in high school compared to their respective white gender groups - but that fewer Latina/os take the recommended high school physical and biological science courses. In their college choice process, Latina/os indicate almost three times greater decline than whites in attending their first choice, despite the fact that they apply to more colleges, and declines are higher for Puerto Ricans. Concerns about

Economic disparities between Latina/o and non-Hispanic white students have quadrupled over the decades and contribute to financial concerns.

financing college may play into this, as receiving financial aid was a key factor in college choice. Interestingly, Latina/os have remained fairly steady in preferred major and career objectives. Lastly, the trends show that Latina/os consistently value helping others, family, becoming financially well off, and helping to promote racial understanding, all of which contrast their white peers who on average score ten points lower on a range of community-oriented values. The trends report on Latina/o college freshmen details strengths and challenges facing these students, calling for research to also better understand their experiences in college and learning outcomes as pursued in the larger DLE project.

In the third study, we highlight important quantitative findings for the participating pilot campuses across two- and four-year institutions as well as across racial and ethnic groups (Hurtado, Cuellar, & Alvarez, 2010). The analysis focused on student reports of three DLE climate factors: Discrimination and Bias, Negative Cross Racial Interactions (NCRI), and Positive Cross Racial Interactions (PCRI). Despite the inclusion of more compositionally diverse campuses in the study, overall climate trends are similar to those typically found in predominantly white institutions, indicating that societal contexts of power and privilege continue to permeate campus life. Even so, some illuminating findings emerge. A select summary of results shows that:

- Higher proportions of students expressed satisfaction with campus climate at two-year colleges compared to four-year institutions.
- Of the various social identities measured, students indicated that harassment occurred more often regarding their race/ethnicity, gender, and age. The latter captures the salience of age in a sample including students older than the traditional 18-22 year old student. Political beliefs also were a source of harassment, likely because they involve issues pertaining to social identity groups.
- Asian Americans and students marking *Two or More* racial groups had notably higher percentages of students indicating more frequent discrimination and bias compared to all other racial and ethnic groups.
- Similarly, 51.0 percent of Asian American students indicated high levels of negative crossracial interactions, with African American, Latina/o, students indicating Two or

More racial groups, and White students following at 35.3, 33.1, 32.5, and 24.4 percent, respectively.

- Even so, 89 percent of all respondents said they never reported an incident of discrimination to a campus authority.
- Interestingly, greater proportions of African American, Asian American, and Two or More students indicated high levels of PCRI than other racial groups, although the African American distribution was u-shaped, showing that a large proportion of these students also experience low levels of positive crossracial interactions.

Study Three confirms that negative campus climates persist for students of color and that discrimination often goes unreported, although students seem more satisfied with campus climate at two-year institutions and are also reporting positive interactions across race alongside negative indicators. The study illuminates that Asian American and multiracially-identifying students indicate a negative campus climate despite common assumptions that these groups may be more like model minorities or exempt from discrimination as their representation increases on college campuses. It also draws attention to the persistence of a negative campus climate for African American students compared to all other racial and ethnic groups. Given that a negative climate persists for students of color, this study raises the question of representation and context, addressed in the fourth study.

Study Four was designed to inform the Supreme Court case *Fisher v. University of Texas* by providing evidence for the use of race in college admissions, using several DLE measures for the amicus brief filed by social scientists. Significantly, *The climate for underrepresented groups and diversity on campus* (Hurtado & Ruiz, 2012) examines campus climate measures for underrepresented minority (URM) students (African American, Latina/o, and Native American) in institutions with differing levels of compositional diversity. Key findings indicate that:

African American, Latina/o, and Native American students experience less frequent discrimination at more compositionally diverse institutions.

- URM students experience less frequent discrimination at more compositionally diverse institutions than at low and mid-diversity institutions.

- Only at institutions with over thirty-five percent URM enrollment do students report a noticeably lower frequency of discriminatory verbal comments and visual images.

This study empirically substantiates the need for increasing compositional diversity on college campuses through admissions by showing less stereotyping and discrimination among URM students in diverse learning environments.

In Study Five, presented to the pilot institutions (Hurtado, & Alvarez, 2010), and additional analysis for this report, the qualitative findings from the project indicate differences in campus climate between racial groups at compositionally diverse broad access institutions, and draw further attention to the importance of institutional mission and student perceptions of faculty, staff, and administration's actions. Results show that:

- African American students overall remark about numerical underrepresentation, stereotypes and unequal treatment, and evidence a keen critique of institutional disregard for racist incidents. At one site, students detailed a negative climate despite that administration felt symbols on campus (e.g. statues, building names) demonstrated the university's commitment to fostering a welcoming climate. In contrast, at one community college, African American students felt comfortable enough to voice their complaints and felt that the administration was responsive, which seemed to reflect the institution's efforts to take seriously the pursuit of an inclusive climate.
- Latina/o students share fluctuating perceptions of climate that generally follow the trend of a more positive climate with validating experiences if there is greater representation on campus, and a more hostile climate by way of racial microaggressions if Latina/os are less represented. An exception includes a community college where Latina/o students were in the majority, where they felt there was preferential treatment by administration and staff if you were Latina/o or Asian American, and also perceived that hiring students fell along racial lines. Another exception was at an institution that Latina/o students felt was compositionally diverse, but evidenced balkanization unless educational practices intentionally engaged students across diversity. Positively, Latina/o students felt most of their faculty were validating, supportive, and effective at teaching. Overall, Latina/o students commented on how they would like to see their

campuses be more compositionally diverse and balanced, with more interaction across difference and equal treatment by administration.

- The qualitative data for Asian American students at broad access institutions contradicts the overall quantitative data, with students saying they experience a positive campus climate for diversity and also perceive a lack of discriminatory incidents in general.
- The campus that had a focus group for Native American students maintained an emphasis on developing positive relationships with the Native communities in the local area, which was confirmed by the participants. The Native students at that institution expressed feeling support, appreciation for the compositional diversity of the campus (especially of the faculty and staff), and that they chose the college because its mission was inclusive of their heritage.
- As expected, white students often characterized their campuses as "friendly" and generally did not speak of negative racial experiences, but rather expressed a desire for more interaction across race and ethnicity, and evidenced microaggressions along other social identities such as sexual orientation, age, and gender. Some highlighted that many campuses lack compositional diversity in terms of race and ethnicity when they were in the majority. Conversely, when in the minority, students felt their campuses were diverse. Many white students expressed a desire to have more interaction across race but seemed to lack the skill to do so, highlighting the need for educational practices that can facilitate positive interaction, with others at more compositionally diverse institutions praising the benefits of learning to do so though informal and formal interactions.

The difference in quality of campus climate between racial and ethnic groups is seen at institutions where we would have expected this to be less prominent due to comparatively better representation; this signals the need for compositionally diverse institutions to remain aware of persistent underrepresentation of some groups (e.g. African Americans), and intentionally harness the educational benefits of diversity through intentional education practice. African American students continue to feel racially isolated and perceive the administration to be apathetic and non-responsive to racist incidents, which draws attention to

the fact that simply increasing representation on campus alone, whether in numbers or symbols, will not create an inclusive climate for diversity. The importance of institutional mission for Native Americans draws attention to institutional mission as articulated and evidenced by faculty representation and interpersonal action. Overall, the findings from Study Five and additional analysis from the case studies indicate that more compositionally diverse institutions tend to facilitate a more positive campus climate for most groups, but that different qualities of climate persist, and that educators play a large role in improving the climate for all groups beyond numerical representation.

The sixth study, titled *"Our biggest challenge is stereotypes": Understanding Stereotype Threat and the academic experiences of African American undergraduates* (Johnson-Ahorlu, in press), further examines the persistence of a negative campus climate for African American students. Despite that other racial and ethnic groups report negative perceptions of campus climate, key findings at four-year pilot institutions include that:

- African Americans are the only racial group who report struggling with stereotypes, and site their struggles and stereotype threat as their primary barriers to academic success.
- Faculty and classmates stereotype African American students as "intellectually incapable and undeserving of university admission" (p. 11).
- Faculty seems surprised when African American students are in their advanced math courses.
- Faculty and students pay close attention to African American students to see if they can keep up academically, often indirectly by asking others about their progress.
- African American students report feeling like they are representatives of their racial group in the classroom.

The study emphasizes that these findings are particularly disconcerting considering that African Americans have one of the lowest six-year degree attainment rates at 42 percent, compared to 57 percent as the national average (U.S. Department of Education, 2009). It informs extant research on stereotype threat by showing the magnitude of its hindrance to students in non-experimental settings, and recommends that institutions advance established interventions to

eliminate the power of stereotypes, and to subsequently improve African Americans' academic success.

Drawing attention to the mixed racial ancestry of many racial groups today, and the freedom for students to indicate more than one racial category on survey forms including the DLE, the seventh study examines campus racial climate using multiple-race data for the first time (Guillermo-Wann, 2013). *How you count matters: Using multiracial student data to examine discrimination and bias in college*, counters assumptions that a perceived growth in the post-civil rights multiracial population suggests that racism no longer exists, as well as fears that multiple-race data will undermine civil rights tracking and progress. Key findings demonstrate that:

- How multiple-race data is classified changes monoracially-constructed groups' representation of discrimination.
- Asian American Pacific Islander (AAPI) students consistently indicate higher frequencies of discrimination and bias than many groups, regardless of classification approach.
- When aggregated into a single group, students who mark Two or More racial categories experience discrimination more frequently than students who only indicate a white or Latina/o background. The same is true for multiracial AAPI/white students.
- Double minority multiracial students have higher frequencies of discrimination than minority/white multiracial students.
- Regardless of how the sample is classified, students' perception of institutional commitment to diversity is negatively related to discrimination for all groups.
- Higher proportions of students of color on campus are associated with less frequent discrimination for Latina/o and African American students.
- Taking a curriculum of inclusion is associated with less frequent discrimination for AAPI students.
- Validation from staff and faculty is associated with less frequent discrimination for Latina/o and African American students.

Study Seven suggests that mixed race and AAPI students do not occupy an "honorary white" status as might commonly be assumed, but rather indicates that relative whiteness may result

in comparative privilege within mixed race students. It also highlights that addressing underrepresentation on campus, developing an inclusive curriculum, a validating faculty and staff, and improving institutional commitment to diversity may help decrease discrimination for several racial groups as practical steps for campuses to take to put research into practice. With regard to how to racially classify multiracial data, the study recommends against aggregating multiracial students for most analyses.

Conclusion

These seven studies highlight that increasing compositional diversity truly is only a first step in creating an inclusive campus climate for diversity, and that using multiple methods of inquiry and analysis can tease out inter- and intra-racial differences across multiple contexts. We see that Latina/os are changing the landscape of American higher education, but continue to be disproportionately first-generation and low-income. While underrepresented minority students experience less frequent discrimination at more compositionally diverse institutions, negative climates still persist, especially for African American students and for students underrepresented in their major departments. Asian American and multiracially-identifying students also indicate more frequent discrimination than might commonly be anticipated. The findings draw attention to broad access institutions' need for campus leaders to openly address discriminatory incidents, as well as develop skills in administration, faculty, staff, and students to dialogue about campus climate issues while still maintaining a focus on equity issues in retention and achievement. Institutions would do well by continuing to enroll more students of color, offering an inclusive curriculum, and validating underrepresented students in and out of the classroom. Institutions that increase their commitment to diversity in tangible and meaningful ways, and communicate it effectively to students, can improve their campus climates in progressively diverse learning environments. ❖

SECTION III. Linking Campus Climate and Educational Practices to College Students' Social Identity, Sense of Validation, and Sense of Belonging

Following the Multi-Contextual Model for Diverse Learning Environments (MMDLE; Hurtado et al., 2012) that places student identity at the core of practice, this section builds upon the climate research in Section II by presenting key findings from six papers examining students' social identity and its salience in their lives (or how often they think about key social group-based identities such as race) and psychological processes such as validation and sense of belonging, and their relationship to select measures of campus climate for diversity and educational practices. Drawing upon DLE pilot data (unless noted otherwise), we first examine racial identity salience, sexual orientation identity salience, and intersectionality of social identities for Latina/o college students. Next, we highlight studies of validation, namely confirming quantitative factors, examining predictive variables, and validation's relationship to sense of belonging and campus climate. Together, these six studies begin to paint a picture of social identity salience and additional psychological processes that take place within the campus context.

Social Identity Salience

The first paper, *Thinking about race: The salience of racial and ethnic identity in college and the climate for diversity* (Hurtado, Ruiz Alvarado, & Guillermo-Wann, C., in review), highlights the importance of racial identity salience, not just racial categories, in college students' perceptions of campus climate for diversity. Key findings include that:

- Students with American Indian, Arab American, Asian American, black, Latina/o, and multiracial backgrounds think about race more often than their white peers.
- Students who speak languages other than English tend to think more about their race/ethnicity than native English-only speakers.
- Racial identity is more salient among students who experience discrimination/bias, have in-depth conversations outside of class on issues of racial/ethnic diversity, take courses as part of an inclusive curriculum, and participate in co-curricular diversity initiatives.

- Asian American and multiracial students are the only groups that indicate more frequent discrimination and bias than other racial/ethnic groups.
- Students with higher racial identity salience also evidence greater pluralistic orientation, integration of learning, critical consciousness and action, and civic engagement.

Racial identity salience in college plays important roles in students' identity development, cognition, and achievement. This study begins to understand it in contemporary and diverse college contexts, showing that college educators can create curricular and co-curricular contexts that increase racial identity salience for students in a positive way, helping them advance in their development and achievement, especially along democratic outcomes.

The second paper, *College experiences that contribute to students' thinking about their sexual orientation identity* (Hughes & Hurtado, 2012), identifies college experiences that increase how often students think about their sexual orientation, and is an important contribution to literature on sexual orientation and its salience in college. Using a combined sample of the 2010 and 2011 DLE administrations, the study compares heterosexual students with their lesbian, gay, bisexual, and other (LGBO) peers. Key findings include that:

- Sexual orientation salience is heightened through a more inclusive curriculum, participation in co-curricular diversity activities, and experiences of bias.
- Participation in an LGBT student organization matters more for LGBO students' sexual orientation salience compared to their heterosexual peers.
- Campus-administered diversity activities heighten heterosexual students' sexual orientation salience more than any other factor.

This study affirms the need to continually transform campus climate to be safe and inclusive for LGBO students, which can be pursued through curricular and co-curricular activities that increase sexual orientation salience for all students. It also draws attention to the importance of including sexual orientation in demographic survey questions to be able to pursue other lines of inquiry along sexual orientation such as equity in campus climate and various learning outcomes as areas for much-needed future research.

The third paper, *Salience at the intersection: Latina/o identities across different campus contexts* (Ruiz Alvarado & Hurtado, in press), uses a combined sample of students identifying

only as Latina/o in the 2010 and 2011 DLE administrations to examine the salience of multiple social identities across differing levels of representation on college campuses. Using a theory of distinctiveness, the study tests the salience of identities in different contexts in which having a different identity might increase salience of that identity in that context. Key findings show that:

- Within Latina/o students and regardless of gender, social identity salience follows an expected pattern in which students think more often about their marginalized identities. These include lower income status, LGBT identity, non-U.S. citizenship or legal resident status, being female, and Central American.
- With few exceptions, marginalized identities are less salient with respective increases in representation on campus.
- Marginalized identities often remain more salient even when privileged identities are in the numerical minority.

The study suggests that distinctiveness theory does not entirely account for social underrepresentation, but rather confirms that power structures related to social identities remain powerful even in compositionally diverse learning environments. The study draws attention to the importance of increasing representation of marginalized groups on college campuses, and that students are juggling intersecting identities and related privilege and oppression. Accordingly, it highlights the need for educators to formally address societal issues of power, privilege, and oppression that persist in college contexts.

Validation, Sense of Belonging, & Campus Climate

The next study, *Quantitative measures of students' sense of validation* (Hurtado, Cuellar, & Guillermo-Wann, 2011), shifts attention to students' sense of validation in classroom and interpersonal contexts. Notably, validation is a promising concept for advancing student retention and success (Rendón, 1994). This study develops two measures of validation from the DLE survey: student perceptions of Academic Validation in the Classroom, and General Interpersonal Validation. In doing so, it advances quantitative study of these concepts that,

until now, had almost exclusively been studied through qualitative inquiry. Using construct validity and cross-validation tests, key findings demonstrate that:

- Academic and interpersonal validation factors measure the concepts well for students of color and white students
- Students of color perceive lower levels of both forms of validation compared to white students.

A primary contribution of this study is the establishment of these factors and survey items for future research to examine the relationship between validation, student experiences, and educational outcomes, which we pursued further as part of the project.

The next set of findings come from our presentation of project findings to participating site visit campuses, and center here on factors related to academic and interpersonal validation (Hurtado, Cuellar, & Alvarez, 2010). Findings include that:

- Informal interactions including student's visiting office hours, experiencing less frequent discrimination and bias, and higher levels of peer encouragement are associated with both forms of validation.
- Campus facilitated activities including more frequent interaction with faculty and staff, less interaction with academic counselors, a greater curriculum of inclusion, stronger perceptions of institutional commitment to diversity, and more participation in co-curricular diversity activities are associated with interpersonal validation.
- Fewer campus-facilitated activities are associated with academic validation – only interaction with faculty, a greater curriculum of inclusion, and stronger perceptions of institutional commitment to diversity.
- Greater percentages of students at four-year institutions indicated higher levels of interpersonal validation than at two-year colleges.

These findings begin to identify informal and formal interactions with peers, staff, and faculty that can bolster and detract from students' sense of validation in diverse learning environments.

The last of these studies, *Inclusive learning environments: The relationship between validation and sense of belonging* (Hurtado, Ruiz, & Guillermo-Wann, in review), structurally

models the relationships between validation, campus climate, and sense of belonging. It begins to disentangle the often-conflated concepts of validation and sense of belonging, with key findings showing that:

- General interpersonal validation and academic validation mediate the effects of a negative campus climate on students' sense of belonging.
- Validation has a direct positive effect on sense of belonging.

Validation mediates the effects of a negative campus climate on students' sense of belonging in college.

This study critically demonstrates that "validating experiences can reinforce self-worth and value in educational environments that may help students remain resilient despite microaggressions" (abstract). Importantly, it too affirms that faculty and staff, both inside and outside of the classroom, can create inclusive learning environments that diminish the power of a negative climate on their sense of belonging in college.

Conclusion

Taken together, this series of papers on social identity salience, validation, and sense of belonging begin to show that students' psychological processes can be deeply sculpted through formal and informal interactions with faculty and staff, and that the relative representation of social identity groups matters given that students embody intersecting identities and may shift between them in various contexts. Notably, the DLE project has begun to produce additional evidence that campus-facilitated diversity activities and a curriculum of inclusion are powerful tools for advancing student development. These educational practices can help foster social identity salience in a positive way, and cultivate validating learning environments that deflate the effects of discrimination on sense of belonging in college. As we will see in the following section, the educational practices that augment social identity salience and these additional psychological processes can also be important in developing the MMDLE's learning outcomes for the twenty-first century. ❖

SECTION IV. Student Outcomes: Retention, Multicultural Competencies, and Habits of Mind

In the current climate of accountability, external pressures to assess democratic learning outcomes and increase college student retention and graduation rates have been on the rise, with state funding simultaneously plummeting across the country. Institutions are in a bind to produce more with less, demanding our attention to empirically investigate this phenomenon using the conceptual framework we developed over the course of the project (MMDLE; Hurtado et al., 2012). A key feature of the MMDLE is that it links campus climate and educational practices to a set of three outcomes: retention, multicultural competencies, and habits of mind for life-long learning. In this section we feature key findings from five studies falling under the umbrella of retention, and three papers addressing multicultural competencies and habits of mind in addition to salient student quotes from our site visits that speak directly to the latter two outcomes in diverse learning environments.

Retention

In the study, *Completing college: Assessing graduation rates at four-year colleges* (DeAngelo, Franke, Hurtado, Pryor, & Tran, 2011), we developed a tool to help campuses more accurately predict their expected retention rates, taking into consideration their institutional mission and student body characteristics. Using matched data from the 2004 CIRP Freshman Survey (TFS) and the National Student Clearinghouse (NSC), the report introduces a new retention calculator predicting four, five, and six-year graduation rates for four-year institutions. The study expands on previous research on college retention and completion by including broader social, economic, psychological, and institutional measures that can improve prediction accuracy by 53, 54, and 66 percent, respectively. In this way, institutions can compare predicted and actual graduation rates to assess how they are doing compared to how they

Using HERI's new retention calculator, colleges can improve the accuracy of retention rate predictions by up to 66 percent for 4, 5, and 6-year graduation rates.

should be expected to do given their institutional mission and student body. Overall, the study finds that first-generation college students are the student population in most need of support to complete. The report also highlights that financial need and intent to transfer are key factors that detract from degree completion, drawing attention to the need for increase aid and advising. We pursued the themes of finance and transfer in the remaining retention studies, as they were prominent in both the qualitative and quantitative DLE data.

In another article, *Undermining the Master Plan: California divestment in higher education and student degree progress* (Johnson-Ahorlu, Alvarez, & Hurtado, 2013), zeros in on the ways decreased state funding creates barriers for students' academic success. Using student-level focus group data from two California State Universities (CSU'S) and two California Community Colleges (CCC's), this study finds that:

- Major barriers to students' academic success include cuts to support services and resources, reduced instructional time due to furloughs, fee increases, and decreased course availability that prolongs degree progress
- Decreased instructional time due to furloughs are unique to CSU's, given that CCC's did not mandate furloughs
- Reduction in support services is unique to one CCC

This study shows college students are keenly aware of decreased state funding in California and readily point to ways these cuts directly affect their academic progress and success. That difference in the results is not evident across racial and ethnic groups further stresses that these pervasive cuts are affecting students from all backgrounds. Precariously, the impact of budget cuts on these academic barriers can undercut national goals for degree completion in the midst of economic downturn and state slashes to higher education funding.

In turn, a third retention study highlights student's navigational strategies and reasons for persistence (Hurtado & Alvarez, 2010) in the midst of seemingly chaotic institutional changes due to budget cuts. Key findings we presented to participating site visit campuses include that:

- Students share common navigational strategies to overcome barriers and achieve their academic goals. For example, many students will attend full time for the financial aid

benefits to navigate their financial barriers, and within full-time status, will take the maximum amount of units allowed because it costs the same as the minimum units required for full-time enrollment status.

- Reasons why students continue to persist each term and year vary across racial groups:

Table 1. College Students' Reasons for Persistence by Racial/Ethnic Group

	Social Mobility	Feeling Support & Guidance	Sense of Belonging	Compositional Diversity
African Am.	x			
Asian Am.		x	x	
Latina/o		x		
Native Am.		x	x	x
White			x	x

The study highlights that student success is related to navigating institutional-level barriers, but that educators can guide students through the challenges resulting from institutions' fiscal turmoil. By tapping into core reasons why students persist, educators can enhance persistence and retention for specific racial and ethnic groups, spurring students on in unique ways.

Throughout the course of the project, it also became evident that students engage in various types of enrollment mobility as recurring points of access, attrition, and retention, the reasons for which we pursue in the fourth study, *Why we get around: A mixed methods understanding of college student enrollment mobility* (Guillermo-Wann, Hurtado, & Alvarez, 2013). Given that multiple-institution attendance and stop-out challenge institutions aiming to improve their retention rates, this study identifies quantitative factors measuring reasons for multi-institution enrollment and stop-out mirrored in students' focus group data at broad access institutions. Results confirm that educational attainment gaps occur through disparities between groups in enrollment patterns, particularly regarding race/ethnicity, income, and academic preparation. Key results from the study underline that:

- Students and institutions evidence a normative culture of enrollment mobility, with almost half of all students having attended more than one institution and/or stopping out, and nearly two thirds of students who had not yet done so considering such mobility.

- Students of color constitute a significantly smaller proportion of the students exhibiting continuous single-institution enrollment compared to patterns of mobility.
- Students with higher incomes and GPA's are more represented amongst students who exhibit continuous enrollment, regardless of the number of institutions they attend, while students from lower income families and with lower GPA's are more represented amongst students who stop out, also regardless of the number of institutions attended.
- Students attending institutions in large cities are more highly represented amongst students with multi-institution enrollment.
- Students' reasons for multi-institution enrollment include cost/convenience and academic opportunities.
- Students' reasons for leaving their current institution include career considerations, life circumstances, and perceived mismatch.
- Students report lack of support as a sixth reason for mobility in the qualitative data.

Students normatively use higher education institutions as a system to navigate towards degree completion. New factors in the DLE survey measure students' reasons for enrollment mobility.

Ultimately, this study shows that students normatively use higher education institutions as a system to navigate towards degree completion. It makes a contribution to assessment efforts and research by validating five quantitative factors that can be used to better understand why students move across institutions with continuous and discontinuous enrollment. Findings suggest that colleges and universities would be wise to develop a "transportation system" that facilitates timely degree completion in addition to improving individual campus' retention.

The final study under the retention umbrella is titled *Assessing the climate for transfer at two- and four-year institutions: How understanding diverse learning environments can help repair the pipeline* (Ruiz & Pryor, 2012). This article highlights the importance of measuring campus climate for diversity and transfer at both two- and four-year institutions, as students often move between these sectors. Drawing from the Community College and Four-Year Transfer modules featured in the DLE pilot administration, we find that:

- Nearly half of all community college students had not utilized programs designed to facilitate vertical transfer to a four-year institution, such as talking to admissions counselors, attending college fairs, and visiting universities.
- Half of community college students also indicated it was difficult to access services outside of regular business hours.
- Nearly all community college students felt it was easy to find help applying to universities at their college.
- Of students who had transferred to a four-year institution, over half never participated in a pre-transfer program, and nearly two-thirds had never participated in programs or activities for transfer students since transferring.
- Although nearly two-thirds of students who had transferred to a four-year institution felt administrators cared about transfer students, they also felt lost, with a third indicating feelings of exclusion.

The study highlights the DLE modules that are able to nationally capture climate for transfer at both sending and receiving institutions, and that institutions can do more to better serve a larger proportion of students moving between two- and four-year colleges and universities, and to improve students' transitions into receiving four-year institutions. Furthermore, it stresses that future research can begin to link these data with measures of campus climate, educational practices, and democratic outcomes to better understand how to repair the leaky educational pipeline and build an effective transportation system towards academic attainment.

Multicultural Competencies & Habits of Mind for Lifelong Learning

As higher education institutions strive to increase degree attainment, many also endeavor to cultivate a host of democratic learning outcomes for the twenty-first century (e.g. AAC&U, 2002; Musil, 2009). In the MMDLE, we specify that students will need both multicultural competencies and habits of mind for life-long learning in the present age (Hurtado et al., 2012). We highlight here select results from two publications, as well as our presentation of qualitative results to pilot institutions coupled with exemplary student quotes from the site

visits. Together, these finding begin to model the interrelatedness of compositional diversity, additional dimensions of campus climate, and educational practices with these two outcome areas.

The study, *Advancing and assessing civic learning: New results from the Diverse Learning Environments Survey* (Hurtado, Ruiz, & Whang, 2012), we examine educational practices that contribute to multicultural competencies and habits of mind for life-long learning. These outcomes map on the Personal and Social Responsibility as an Essential Learning Outcome (AAC&U, 2002). Using a sample from the 2011 DLE national launch, multilevel modeling results show that:

- Participation in service learning contributes to five outcomes illustrative of the Civic Learning Spiral (Musil, 2009): Critical consciousness and action, social agency, integration of learning, civic engagement, and political engagement.
- Student exposure to diversity in curriculum and pedagogy is associated with gains in pluralistic orientation.
- Participation in study abroad, women's studies, and ethnic studies each have unique associations with a host of civic outcomes compared to students who did not take such courses.
- Students' scores for habits of mind and various interactions across difference are significantly related to changes on all civic outcomes as well.
- Student participation in racial/ethnic organizations increases social agency, political engagement, and civic engagement, with participation in Greek life associated only with gains in the latter.

Ultimately, this study shows that student participation in service learning and an array of formal and informal diversity experiences and practices positively impact civic learning, as measured through DLE outcomes. This article begins to provide additional evidence of the educational benefits of diversity as they relate to specific educational practices.

The remaining papers and quotes from site visits we feature in this section speak specifically to the role of campus climate for diversity and educational practices in students'

development of a Pluralistic Orientation. Regression findings presented to participating pilot institutions (Hurtado, Cuellar, & Alvarez, 2010) show that:

- Pluralistic orientation can be strengthened through positive cross racial interactions, increasing student's interest in helping to promote racial understanding, improving students' perceptions of institutional commitment to diversity, and engaging more frequently in conversations across difference.

Additionally, *The climate for underrepresented groups and diversity on campus* (Hurtado & Ruiz, 2012), indicates that:

- All students at institutions with more than thirty-five percent students of color score significantly higher on the pluralistic orientation scale.

Student narratives from the site visits also support that compositional diversity, as an aspect of campus climate, contributes to their learning and development. One Latina university student shares:

> "I think it prepares us more, for myself, for my career, just knowing people, just all different kinds of people and being able to communicate with them, to speak to them, to know them, to recognize little differences, subtle differences and likenesses between us and that kind of…if you think about it or not, that kind of prepares you for out in the workforce, in the global workforce, because we're not talking about just working here in the U.S., we're talking about working anywhere in the world, and being exposed to different cultures… We're just a little bit more prepared to face the global workforce."

A white student at the same university also comments about the benefits of compositional diversity and resulting opportunities for interaction across difference, saying:

> "Yeah, it definitely has given more opportunities to kind of learn from other people, other cultures, other experiences, especially me growing up, it was just kind of like you're not really sheltered, but you're still thinking the same way as your parents are … so you kind of grow up with that mindset and you get into college and you can see where other people are coming from and other struggles that they've had that I never even thought about or even knew about, and you're so immersed in it. It's everywhere,

you can't just block it out, you know, and so you get to know people, you get to understand them, and you really get kind of a better life experience because of that." These studies show, critically, that all students benefit from learning in an environment with diverse peers. Compositional diversity and a host of educational practices in diverse contexts help cultivate important learning outcomes for the 21st century.

Conclusion

Taken together, this emerging research continues to support the enrollment and retention of a diverse student body. These studies offer practical ways institutions can assess and improve campus and system-wide retention and degree attainment, and the development of multicultural competencies and habits of mind for life-long learning. Specifically, the instituting a diverse curriculum, co-curricular diversity activities, service learning, improving institutional commitment to diversity, and facilitating positive interaction across difference are specific ways institutions can invest in educational practice that will result in college graduates that are well-equipped to advance in a complex, global, and diverse workforce. Moreover, the studies reaffirm the importance of diversity practices in relation to the development of multicultural and civic competencies that show promise in advancing social progress in a more just and equitable society. ❖

Project Summary and Future Directions

The DLE project was a significant endeavor to better understand student success in diverse learning environments, extend evaluation and research of campus climate, educational practices, and learning outcomes to broad-access institutions, and provide educators with practical tools to help guide institutional transformation that will produce graduates who can advance a more just and equitable society. Over the duration of the project, we made a new climate assessment nationally available, provided scores of educators with research and practical training to pursue diversity and equity in their work, developed a conceptual framework for student success in diverse learning environments, and produced a burgeoning body of empirical research. We have presented results to over 30 institutional, national, and international audiences, including executive administration, educational scholars, teaching faculty, institutional research and student affairs staff, and policy makers. In addition to the 14 campuses that participated in the 2010 DLE survey pilot administration, 45 campuses have administered the survey, with five institutions doing so more than once. The pilot institutions have been using the survey and/or site visit reports to enact institutional change at their campuses. They have begun this through wide dissemination of the reports and home-grown research briefs, initiating campus-wide dialogue about the study findings, conducting follow-up research to better understand why some student groups continue to feel marginalized, and evaluating and/or composing strategic plans for diversity. The Institutes we held assisted 32 young scholars in advanced quantitative research for equity issues, 212 educators (some in campus teams) and counting have been introduced to the latest diversity research, and over 78 individuals and campus teams have learned about retention and student persistence research. Thus, the DLE project was critical in helping institutions monitor the campus climates for diversity and link them to educational practices and outcomes that together will foster a more equitable and just society.

Results from the study consistently produce similar findings across methodological approaches with few exceptions. Not only do they further substantiate the educational

benefits of diversity, they begin to show how institutions can begin to put research into practice in broad access institutions where populations of college students who are critical for national success are educated. The findings show these compositionally diverse institutions have a reservoir of treasures in their diverse student bodies, but that campuses often struggle to intentionally harness the educational benefits of diversity when they are faced with meeting the financial and enrollment needs of their students. However, the project also shows that institutions can implement educational practices in existing curricular and co-curricular initiatives that can profoundly impact college student retention and the development of habits of mind and multicultural competencies. The practices are actionable and scalable, and are desperately needed, as the project finds that various social identity groups continue to experience a hostile campus climate for diversity, although it decreases with increased representation. The findings therefore affirm that we cannot leave diverse learning environments to chance and expect students will learn to engage across difference on their own. Instead, institutions play a critical role in creating an inclusive campus climate for student success. In this sense, the project identifies ways that institutions can engage in transformative change, even through decentralized approaches if central administration fails to clearly articulate a strategic plan for diversity and equity despite a commitment to do so. Ideally, the project shows that students will be best served when institutions are engaged in clear strategic planning for both diversity and equity, continue to increase diverse student enrollments, implement broadly effective educational practices, and clearly communicate with students about diversity and assist them in navigating the college environment towards degree attainment. Such coordinated efforts and effective communication with students appears to be progressing at different rates at the participating campuses, each of which have their eye on matters of diversity and equity as crucial matters for student success.

The project offers some specific suggestions for institutions to better enhance diversity and serve their students well by harnessing educators' holistic understanding of student success and making it actionable. First, institutions must seriously approach the task of helping their students navigate social, academic, and financial challenges while pursuing their degrees. Second, institutions must take a hard look at programs, processes, and expenditures to identify

core educational priorities and align all practices with those values and goals. In doing so, campuses must find creative ways to advance equity issues in retention as well as harness the power of diverse learning environments in the production of essential learning outcomes. Faculty and student affairs staff development and collaboration around issues of diversity and climate may provide additional venues to create dialogue and learning across difference. Likewise, campuses that have already achieved both a diverse student body and diversity practices must turn their attention to organizational processes that will facilitate educational progress towards students' goals. Finally, broad access institutions as well as predominantly white institutions must assess and improve the climate for diversity for all students. Simply because there may be compositional diversity does not automatically mean that the climate is positive for all groups. The project demonstrated that a diverse student body and diversity practices achieve both climate improvements and advance the central learning outcomes that reflect inclusive excellence. Institutions that effectively assess campus climate for diversity, practices, and outcomes will gain a richer understanding of their students' experiences, and be able to focus on key processes and practices to equitably improve the climate and student outcomes.

Future Directions

The next phase of the project will focus on further data analysis and advancing new studies of institutional practice and coordination of effort. Notably, HERI has made the DLE survey available to institutions and subsequent data for researchers available through CIRP's online registration system for administration and a research proposal process (www.heri.ucla.edu). This will produce additional institutional research necessary for local campus improvement at the same time that new national data will become available for comparisons and future studies of diverse learning environments. Additional unique studies can be conducted by researchers by requesting data access through a proposal process. This will ensure that the higher education community will continue to reap the benefits from a new volume of data. A number of empirical articles from the project are in review or preparation, and data from the project are featured in several dissertations in progress. Additionally, CIRP plans to further validate the factors presented in this report using Item Response Theory (IRT),

which is an emerging analytic tool and is the direction in which CIRP is moving with regard to standardizing its methodology. Markedly, drawing upon the work begun through the DLE project, the next project hopes to pursue understanding campus climate as it relates to student retention and enrollment mobility in broad access institutions and institutions in close geographic proximity. Future research will hold many new lines of inquiry that draw upon the foundation built by the DLE project.

Current and Planned Publications

Published or In Press

DeAngelo, L., Franke, R., Hurtado, S., Pryor, J.H., & Tran, S. (2011). *Completing college: Assessing graduation rates at four-year colleges.* University of California, Los Angeles: Higher Education Research Institute.

Johnson-Ahorlu, R. N. (In press). "Our biggest challenge is stereotypes": Understanding Stereotype Threat and the academic experiences of African American undergraduates. *Journal of Negro Education.*

Hurtado, S. (2009). Assessing higher education' advancement toward a new vision of society. *Diversity & Democracy*, 12(1), 1-3.

Hurtado, S., Alvarez, C. L., Guillermo-Wann, C., Cuellar, M., & Arellano, L. (2012). A model for Diverse Learning Environments: The scholarship on creating and assessing conditions for student success. In M. B. Paulsen (Ed.), *Higher Education: Handbook of Theory and Research, Vol. 27,* 41-122. New York, NY: Springer.

Hurtado, S., Cuellar, M., & Guillermo-Wann, C. (2011). Quantitative measures of students' sense of validation: Advancing the study of academic validation in the classroom and general interpersonal validation in diverse learning environments. *Journal of Enrollment Management, Summer*, 53-71.

Hurtado, S., Griffin, K. A., Arellano, L. & Cuellar, M. (2008). Assessing the value of climate assessments: Progress and future directions. *Journal of Diversity in Higher Education*, *1*(4), 204-221.

Hurtado, S. & Ruiz Alvarado, A. (in press). Diversity in Teaching and Learning: Affirming Students as Empowered Learners. *Diversity & Democracy: Civic Learning for Shared Futures*. A publication of the Association of American Colleges and Universities.

Hurtado, S., & Ruiz, A. (2012). *The climate for underrepresented groups and diversity on campus.* Los Angeles, CA: Higher Education Research Institute, UCLA.

Hurtado, S., Ruiz, A., & Whang, H. (2012). Advancing and assessing civic learning: New results from the Diverse Learning Environments Survey. *Diversity & Democracy: Civic learning for Shared Futures*, *15*(3), 10-12.

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Johnson-Ahorlu, R. N., Alvarez, C. L., & Hurtado, S. (2013). Undermining the Master Plan: California divestment in higher education & student degree progress. *Journal of College Admission, Winter*, 22-35.

Ruiz Alvarado, A., & Hurtado, S. (In press). Salience at the intersection: Latina/o identities across different campus contexts. In D.J. Davis, R.J. Brunn, & J. Olive (Eds.) *Intersectionality and research in education*.

Ruiz, A., & Pryor, J. (2012). Assessing the climate for transfer at two- and four-year institutions: How understanding diverse learning environments can help repair the pipeline. *College & University*, 2-6.

In Review or Revision

Guillermo-Wann, C. (In review). How you count matters: Using multiracial student data to examine discrimination and bias in college. *Journal of Higher Education.*

Guillermo-Wann, C., Hurtado, S ., & Alvarez, C. L. (In review). Why we get around: College student enrollment mobility as a transportation system between multiple institutions. *Research in Higher Education.*

Hurtado, S., Ruiz Alvarado, A., & Guillermo-Wann, C. (In revision). Thinking about race: The salience of racial and ethnic identity and its relationship to perceptions of campus climate. *Journal of Higher Education.*

Articles, Books, and Monographs in Preparation

Arellano, L., Guillermo-Wann, C., Cuellar, M., Alvarez, C. L., Johnson-Ahorlu, N., & Hurtado, S. *Validating the multidimensionality of the campus climate for diversity*. (Working title.)

Hughes, B., & Hurtado, S. *College experiences that contribute to students' thinking about their sexual orientation identity.* (Working title.)

Hurtado, S., Ruiz Alvarado. A., & Guillermo-Wann, C. *Inclusive learning environments: The relationship between validation and sense of belonging.* (Working title.)

Hurtado, S. Improving the success of diverse college students: Linking research and practice (Working book title).

Doctoral Student Dissertations

Arellano, L. (2011). Capitalizing Baccalaureate Degree Attainment: Revealing the Path of the Latina/o Scholar. Unpublished doctoral dissertation, University of California, Los Angelos.

Guillermo-Wann, C. (2013). How you count matters: Using multiracial student data to examine discrimination and bias in college, Chapter 3. In C. Guillermo-Wann, *(Mixed) race matters: Racial theory, classification, and campus climate.* Unpublished doctoral dissertation, University of California, Los Angeles.

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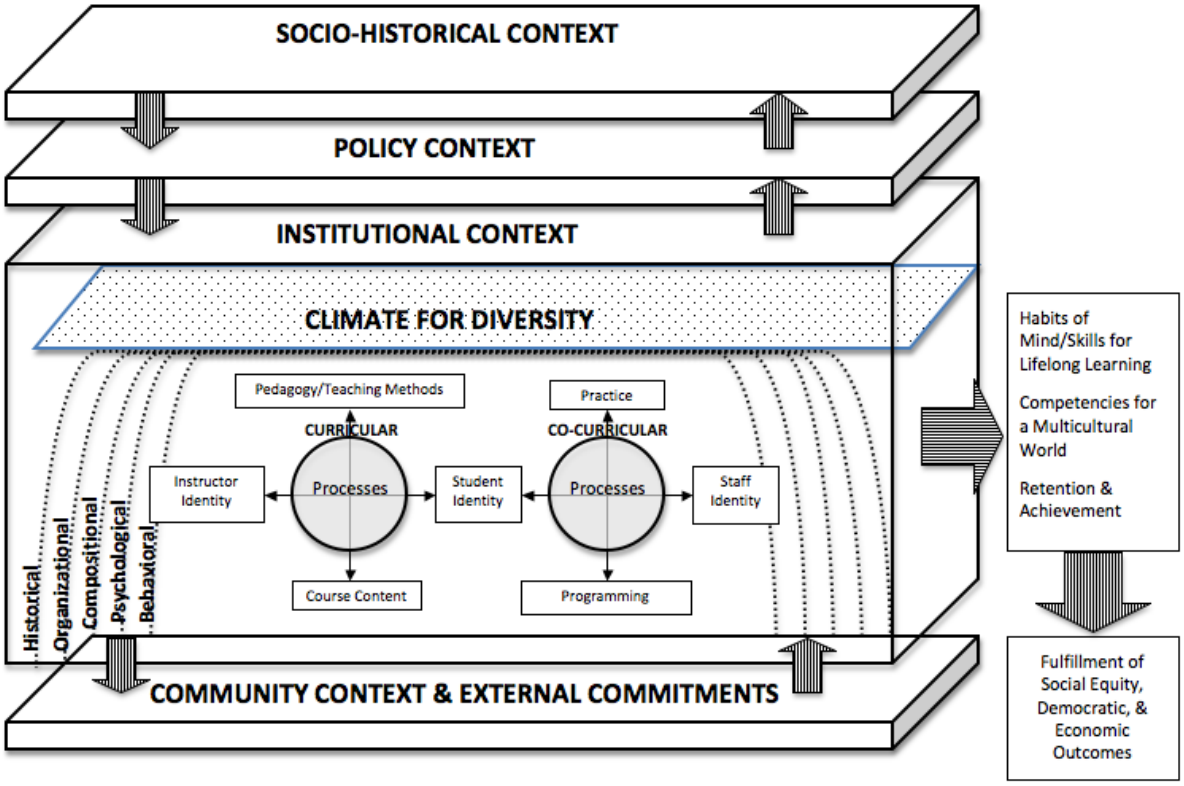
APPENDIX A: The Multi-Contextual Model for Diverse Learning Environments



Source: Hurtado, Alvarez, Guillermo-Wann, Cuellar, & Arellano (2012).

APPENDIX B: Methods

The DLE research project was conducted through UCLA's Higher Education Research Institute (HERI). The project employed a multi-phase, mixed methods research design to examine the campus climate for diversity, educational practices, and student outcomes in diverse learning environments found in broad access institutions. The DLE project developed and piloted a survey instrument for undergraduate students at thirteen campuses to examine the campus climate for diversity, educational practices, and select learning outcomes, a needed gap in survey research (Hurtado et al., 2008). HERI's Cooperative Institutional Research Program (CIRP) has since launched it nationally. The DLE project also conducted site visits at seven participating campuses in 2009 and 2010 to gather more in-depth data about the diverse contexts that students experience in the twenty-first century. This section first details the quantitative research design and data collection, followed by the qualitative process. Both forms of data were collected simultaneously, and provide a more nuanced picture of diverse learning environments in the 21st century.

The Quantitative Phase

Designing the DLE Instrument

The research team methodically evaluated over ninety climate surveys prior to developing the DLE instrument (Hurtado et al., 2008). This process confirmed that higher education assessment lacked a national survey that simultaneously assessed the campus climate for diversity, educational practices, and student outcomes. Key questions from existing surveys were incorporated or modified, and new questions were developed to assess key areas of the student experience that had previously been undeveloped in survey research (e.g. validation). The survey design developed in tandem with the evolution of the MMDLE conceptual framework (Hurtado, Alvarez et al., 2012), guiding the survey development process. Every effort was made to assess as many components of the conceptual model as possible while retaining integrity of measures in the instrument. This lead to the development of a

comprehensive survey instrument with a number of modules deemed important for assessing various aspects of student's college experiences, with every effort to ensure its grounding in research and utility to researchers and educators alike.

Pilot Testing

Upon completion of the first draft of the DLE instrument, the research team held focus groups at Santa Ana College and the University of Denver with students to test the survey. Incentives were offered to students for participation, and great effort was made to include students who had minimal formal involvement in extracurricular activities in addition to campus leaders; this helped ensure a broad range of feedback. Students first took the survey, and upon completion, provided feedback on what was confusing, missing, and what spoke to their experiences; the focus group lasted approximately one and one half hours, with two focus groups at each site. Surveys were collected, and revisions made in light of the pilot test and feedback from the focus groups.

Survey Administration

The DLE survey was administered between December 2009 and May 2010 at three community colleges, six public four-year institutions, and five private four-year institutions across the United States. Students were recruited through emails, flyers, and personal contact with faculty and staff at each site, and were offered incentives. Community colleges targeted students who had earned twenty-four units or more, and four-year institutions focused on students in their second and third years, including transfer students; first and fourth-or-more year students were also surveyed at some institutions. The target sample aimed to identify students who would be most familiar with the campus climate for diversity (due to the overall focus of the project) and who were potentially at critical transitions in their education. The Data Recognition Corp (DRC) stored the data, and updates were made live nightly so that campus liaisons could download preliminary data and send reminder emails to students throughout the administration period.

Sample

Important for the DLE project, the sample from the survey administration reflects a diverse group of students. The online-only administration averaged a thirty-four percent

response rate based on students who accessed the survey from notification emails. The final sample size was 5010 after removing graduate students, and was comprised of 469 freshmen, 1593 sophomores, 1424 juniors, 1041 seniors, and 483 other standings based on self-reports. The racial and ethnic composition of the final sample was 0.7% Arab American/Arab (n = 36), 14.6% Asian American/Pacific Islander/Asian (n = 733), 4.4% Black (n = 218), 19.1% Latina/o (n = 959), 0.7% Native American/American Indian/Alaska Native (n = 35), 41.0% White/Caucasian (n = 2056), and 18.2% students who indicated Two or More racial categories (n = 912). The mean age was 25.9 years with 33.6% age 25 through 81, and 43.9% entered their current institution as transfer or re-entry students. Most earned a high school GPA average of a B or higher (80.6%). Students clustered around higher and lower income ranges with a mean range of $40,000 - $49,999, but only 47.2% (n = 2130) had a parent with a college degree. As intended, the sample included diverse students at broad access institutions to address gaps in higher education research.

Methods of Analysis

Quantitative data analysis has taken several forms. A primary goal in this area was to create and validate statistically sound factors measuring climate, practices, and outcomes, which employed exploratory and confirmatory factor analysis. Several research papers also used structural equation modeling, factorial invariance testing, ANOVA and post-hoc testing, hierarchical linear modeling, logistic regression, and multiple linear regression.

Validating the DLE Factors

The factor analysis process followed Byrne's (2008) sequence. First, the team examined descriptive statistics including means, standard deviations, skewness, and kurtosis for distribution normality. Missing data were not replaced, nor were data weighted. Pearson correlations were also monitored for strong relationships between variables that might measure distinct latent factors (Harman, 1976). For potentially "new" factors that had not yet been validated in previous quantitative research (e.g. validation), exploratory factor analysis was performed first with principal axis factoring and varimax rotation. Items were removed if their loading was below .35. Factors that appeared conceptually and mathematically plausible were retained; those that were conceptually but not mathematically sound were identified as

themes. Next, for all potential factors, confirmatory factor analysis (CFA) was conducted in EQS software. As Hurtado, Cuellar, and Guillermo-Wann (2011) recount,

> Factor analysis in general explains the correlations or covariances between observed variables and unobserved latent factors (Bollen, 1989). In conducting CFA, we specify a model with latent factors hypothesized to fit the data and then use the technique to confirm the model; therefore the technique requires some *a priori* knowledge about the data structure and is appropriate for measures developed from a strong theoretical foundation (Bollen 1989; Byrne, 2008). Several model fit indices together indicate whether or not the data fit the hypothesized factor structure and measurement, with cutoffs for the comparative fit index (CFI) close to .95, root mean square error of approximation (RMSEA) close to .06 (Hu & Bentler, 1999), and the normed fit index (NFI) close to .95 (Bentler & Bonnett, 1980; Hu & Bentler, 1999). To test the hypothesized model, the covariance matrix … was analyzed using robust maximum likelihood (ML) estimation [when appropriate], which corrects for non-normality in the data (Yuan & Bentler, 2007). The hypothesized models were adjusted based on model fit and statistical modification indices coupled with theoretical justification. (p. 59)

Factors were then rescaled 0 to 100 with a mean of 50. These statistical procedures were undertaken in validating the DLE factors for the entire sample as reported in Section I.

The Qualitative Phase

Case Selection, Sample, and Data Collection

The qualitative phase included site visits to seven campuses for the DLE project. Interview and focus group data were gathered from students, staff, faculty, and administration at seven broad-access higher education institutions across various regions of the United States. Each institution had a structurally diverse student body, a number of initiatives that demonstrated a commitment to valuing and enacting diversity, and a desire to increase student retention. With the recruitment efforts of staff and faculty at each respective campus, 151 undergraduate students participated in a total of 25 focus groups organized by racial/ethnic

groups[2], with the purpose of understanding racial/ethnic differences in their student experience (if any), given that a major component of the DLE project focused on the campus climate for diversity, which has traditionally focused on race and ethnicity with intersections of additional social identities within racial categories. The protocol for the student focus groups probed their experiences of campus climate, retention and attrition behavior, and barriers and facilitators of student success. A total of 117 student affairs professionals (some of whom were also faculty) participated in a total of 15 focus groups, and a total of 36 top-level campus administrators participated in one-on-one interviews. The protocols probed current pressures and initiatives surrounding campus climate, retention, and student success. The focus groups and individual interviews ran for approximately an hour to an hour and a half, and were conducted by at least one member of the research team, all either doctoral students, the post-doctoral scholar, or the principal investigator.

Methods of Analysis

The audio recordings retrieved from all focus groups and interviews were transcribed and then coded inductively for emergent themes as well as deductively for themes in the literature. Student interviews were coded for sixteen themes, including barriers to success, reasons for persistence, positive and negative perceptions of the campus climate, navigational strategies, and perceptions of available campus resources. The practitioner and top-level administrator interviews were coded for eighteen themes, including perceptions on student success, perceptions on the state of retention and diversity at the institution, perceived student barriers, and their perceptions on the relationship between the organizational structure of the institution and diversity, retention, and student success. Later, all data were coded again deductively, paying attention to data reflecting factors identified in some quantitative analysis. The coding was done by two members of the research team using NVivo software and achieved a 97 percent in inter-coder reliability. Specific papers and analyses also engaged in cross-case analysis using meta-matrices for across-group comparisons.

[2] Due to unforeseen circumstances, a few of the participating institutions had difficulty scheduling student focus groups based on racial/ethnic membership, and therefore created focus groups of students with varied racial/ethnic identification. A total of three focus groups were therefore labeled as “multicultural” for record-keeping purposes.

Participating Institutions

The following institutions were involved in the study. Those marked with a single * did not participate in survey administration. Those with a double ** did not participate in site visits.

- California State University, Channel Islands
- Cambridge College**
- Cosumnes River College
- Humboldt State University**
- Johnson Community College**
- Lourdes College**
- Northern Arizona University
- San Jose State University
- Santa Ana College
- Texas A&M University**
- University of Denver
- University of Illinois at Chicago*
- University of Nevada, Las Vegas**
- University of San Diego**
- Westminster College**

APPENDIX C: DLE Core Survey Factor Loadings and Reliability

Appendix C. Core Survey Standardized Factor Loadings, Reliability, and Model Fit Indices

Factor/Variable	Factor Reliability / Loading	NFI	CFI	RMSEA
PRE-COLLEGE				
*Pre-College Knowledge of Diverse Groups**	(α = .813)	.992	.993	.046
School-sponsored social events/activities	.761			
Other social activities	.757			
Classroom	.704			
Study groups	.691			
Neighborhood	.570			
Employment/job	.445			
CLIMATE FOR DIVERSITY				
Psychological Dimension				
*Institutional Commitment to Diversity**	(α = .857)	.958	.959	.079
Has campus administrators who regularly speak about the value of diversity	.724			
Appreciates differences in sexual orientation	.711			
Promotes the appreciation of cultural difference	.698			
Rewards staff and faculty for their participation in diversity efforts	.666			
Promotes the understanding of gender differences	.665			
Has a long standing commitment to diversity	.651			
Accurately reflects the diversity of the student body in publications (e.g. brochures, website, etc.)	.631			
*Satisfaction with the Campus Climate for Diversity**	(α = .930)	.992	.992	.052
Interactions among different racial/ethnic groups	.890			
Campus-wide respect for the expression of diverse beliefs and experiences	.853			
Administrative response to incidents of	.781			

discrimination				
Racial /ethnic diversity of the staff	.745			
Atmosphere for political differences	.737			
Racial/ethnic diversity of the faculty	.728			
Racial/ethnic diversity of the student body	.726			
Atmosphere for religious differences	.711			
Behavioral Dimension				
Conversations Across Difference	(α = .841)	.993	.993	.050
With someone whose religion, philosophy of life, or personal values are different from your own	.787			
With someone whose socioeconomic class is different from your own	.759			
Outside of class about sexism, gender differences, or gender equity	.671			
Outside of class on issues related to racial or ethnic diversity	.639			
With someone whose sexual orientation is different from your own	.620			
With someone from a country other than your own	.524			
*Discrimination and Bias**	(α = .889)	.955	.958	.056
Verbal comments	.792			
Written comments (e.g. emails, texts, writing on walls, etc.)	.762			
Witnessed discrimination	.750			
Exclusion (e.g. from gatherings, events, etc.)	.746			
Offensive visual images or items	.733			
Heard insensitive or disparaging racial remarks from faculty	.677			
Heard insensitive or disparaging racial remarks from staff	.664			
Heard insensitive or disparaging racial remarks from students	.644			
Been mistaken as a member of a racial/ethnic group that is not your own	.444			
*Harassment**	(α = .917)	.958	.961	.047
Physical assaults or injuries	.935			
Threats of physical violence	.912			
Anonymous phone calls	.844			
Damage to personal property	.794			
Reported an incident of discrimination to	.685			

a campus authority				
*Negative Cross-Racial Interactions**	(α = .769)	1.000	NA	NA
Had tense, somewhat hostile interactions	.849			
Felt insulted or threatened because of your race/ethnicity	.849			
Had guarded interactions	.660			
*Positive Cross Racial Interactions**	(α = .884)	.989	.990	.056
Had intellectual discussions outside of class	.839			
Dined or shared a meal	.783			
Had meaningful and honest discussions about race/ethnic relations outside of class	.780			
Shared personal feelings and problems	.779			
Socialized or partied	.729			
Studied or prepared for class	.629			
Attended events sponsored by other racial/ethnic groups	.543			
GENERAL CLIMATE				
*Academic Validation in the Classroom**	α = .863	.986	.986	.062
Instructors provided me with feedback that helped me judge my progress	.842			
I feel like my contributions were valued in class	.811			
Instructors were able to determine my level of understanding of course material	.776			
Instructors encouraged me to ask questions and participate in discussions	.673			
Instructors showed concern about my progress	.588			
Instructors encouraged me to meet with them after or outside of class	.582			
*General Interpersonal Validation**	α = .862	.979	.979	.071
Faculty believe in my potential to succeed academically	.830			
At least one faculty member has taken an interest in my development	.773			
At least one staff member has taken an interest in my development	.764			
Staff recognize my achievements	.721			
Faculty empower me to learn here	.598			

Staff encourage me to get involved in campus activities	.564			
*Sense of Belonging**	α = .915	1.00	NA	NA
I feel that I am a member of the campus community	.940			
I see myself as a part of the campus community	.900			
I feel a sense of belonging to my campus	.814			
*Student Financial Difficulty**	α = .690	1.00	NA	NA
I am facing more financial difficulty this year	.733			
Felt concerned about your ability to finance your college education	.722			
I may have to choose between financially supporting my family and going to college	.545			
PRACTICES				
*Co-Curricular Diversity Activities (Campus Facilitated)**	(α = .903)	.981	.982	.062
Participated in ongoing campus-organized discussions on racial/ethnic issues (e.g. intergroup dialogue)	.866			
Participated in the Ethnic or Cultural Center activities	.848			
Attended debates or panels about diversity issues	.810			
Participated in the Women's/Men's Center activities	.782			
Participated in the Lesbian, Gay, Bisexual, and Transgender Center activities	.729			
Attended presentations, performances, and art exhibits on diversity	.649			
Curriculum of Inclusion (Also a measure of the Organizational Dimension of Climate)	(α = .854)	.987	.988	.056
Material/readings on race and ethnicity issues	.824			
Materials/readings on issues of oppression as a system of power and dominance	.775			
Materials/readings on gender issues	.715			
Materials/readings on issues of privilege	.705			
Opportunities for intensive dialogue	.635			

between students with different backgrounds and beliefs				
Serving communities in need (e.g. service learning)	.578			
OUTCOMES				
Habits of Mind				
*Habits of Mind for Life-Long Learning**	(α = .847)	.957	.960	.054
Evaluate the quality or reliability of information you received	.696			
Seek alternative solutions to a problem	.631			
Seek solutions to problems and explain them to others	.631			
Seek feedback on your academic work	.568			
Revise your papers to improve your writing	.584			
Take a risk because you felt you had more to gain	.559			
Support your opinions with a logical argument	.550			
Explore topics on your own, even though it was not required for a class	.513			
Ask questions in class	.514			
Look up articles and resources based on research	.499			
Accept mistakes as part of the learning process	.439			
Integration of Learning	α = .736	.999	.999	.028
Used different points of view to make an argument	.676			
Made connections between ideas I learned in different courses	.656			
Integrated skills and knowledge from different sources and experiences	.620			
Applied concepts from courses to real life situations	.535			
Multicultural Competencies				
Anticipated Involvement in Redressing Social Inequality	(α = .866)	.999	.999	.020
Working to correct social and economic inequalities	.924			
Helping promote inter-racial/inter-ethnic understanding	.741			
Influencing social policy	.707			

Achieving greater gender equity	.660			
Influencing the political structure (e.g. voting, education campaigns, get-out-the-vote efforts, etc.)	.557			
Critical Consciousness and Action	α = .799	.992	.993	.044
Challenged my own position on an issue	.739			
Recognized the biases that affect my own thinking	.707			
Made an effort to educate others about social issues	.680			
Made an effort to get to know people from diverse backgrounds	.595			
Challenged others on issues of discrimination	.580			
Felt challenged to think more broadly about an issue	.536			
*Civic Engagement**	(α = .801)	.981	.982	.047
Contacted public officials, print or broadcast media (e.g. petitions, letters, etc.)	.718			
Participated in a political demonstration (e.g. boycott, rally, protests, etc.)	.640			
Discussed politics	.624			
Participated in fund-raising for a charity or campaign	.594			
Voted in a national, state, or local election	.510			
Engaged in community service	.507			
*Pluralistic Orientation**	(α = .787)	.990	.991	.052
Tolerance of others with different beliefs	.752			
Ability to discuss and negotiate controversial issues	.728			
Openness to having my own views challenged	.672			
Ability to work cooperatively with diverse people	.607			
Ability to see the world from someone else's perspective	.589			
*Social Identity Salience (Visible)**	(α = .795)	.998	.998	.040
Gender	.900			
Socioeconomic class	.744			
Age	.640			
Race/ethnicity	.625			

Social Identity Salience (Not visible)	(α = .676)	.998	.998	.021
Ability/disability status	.700			
Sexual orientation	.656			
Citizenship status	.571			
Religious/spiritual beliefs	.435			
Retention/Achievement				
*Multi-Institution Enrollment Reason: Academic Opportunities**	α = .837	.996	.994	.045
To have a wider selection of courses	.856			
Programs I am interested in are not offered here	.667			
To take extra classes to explore my interests	.657			
To earn a degree or certificate that is not offered here	.642			
To challenge myself academically	.618			
Multi-Institution Enrollment Reason: Cost/Convenience	α = .808	.990	.991	.040
Tuition is less expensive	.719			
The location is more convenient	.710			
To have a more convenient class schedule	.639			
To lower my living expenses	.590			
To complete my degree quicker	.569			
Courses that I need to graduate are easier at another institution	.522			
To fulfill course requirements	.391			
Stop-Out Reason –Career Considerations	α = .807	1.000	NA	NA
Changed my career plans	.875			
Wanted to reconsider my goals and interests	.827			
*Stop-Out Reason –Life Circumstances**	α = .815	.993	.994	.036
Had a good job offer	.760			
Had family responsibilities	.706			
Wanted to be closer to home	.636			
Was placed on academic probation	.609			
Had money problems and could no longer afford to attend college	.590			
Was tired of being a student	.515			
*Stop-Out Reason – Perceived Mismatch**	α = .816	.998	.998	.048
Felt like I didn't 'fit in' at my previous college	.811			
Wanted to go to a school with a better	.778			

academic reputation	
Wanted a better social life	.716
Was bored with my coursework	.692
Wanted practical experience	.598

*Robust ML Model-Fit Indices

APPENDIX D: DLE Module Factor Loadings and Reliability

Appendix D. Survey Modules' Standardized Factor Loadings, Reliability, and Model Fit Indices

Factor/Variable	Factor Reliability/ Loading	NFI	CFI	RMSEA
CLASSROOM CLIMATE				
*Applying Knowledge to Societal Challenges**	(α = .777)	.989	.993	.035
I am interested in developing solutions for challenges facing this nation	.701			
I think a lot about my responsibilities and role in the world	.611			
I plan to work alongside marginalized communities	.594			
I often discuss ideas and concepts from class with other students	.589			
I enjoy discovering new ways of understanding things	.579			
People in my community are counting on me to do well in college	.493			
*Faculty Create a Positive Climate**	(α = .884)	.979	.982	.059
Encourage students to contribute different perspectives in class	.850			
Turn controversial topics into good discussions	.823			
Often share their own experiences and background in class	.703			
Encourage students from diverse backgrounds to work together	.695			
Communicate high expectations for students' performance	.674			
Help students learn how to bring about change in American society	.640			
Have open discussions about privilege, power and oppression	.627			
TRANSITION INTO MAJOR				
*Difficulty in Accessing Desired Major **	(α = .732)	.980	.989	.033
I have not been able to enroll in classes due to a hold placed on my account	.648			
I was unable to get into my first choice major	.617			

I am likely to pursue my major at another institution	.571			
I would rather leave than pick any major just to meet the deadline	.555			
There are too many steps to declare a major here	.457			
I find it difficult to fulfill requirements for my major	.442			
*Institutional Support for Choosing a Major**	(α = .705)	.997	1.000	.005
Information about majors is widely available to students	.736			
Information distributed on majors is useful	.674			
This campus has many events/activities to help students choose a major	.636			
*Positive Major Climate**	(α = .783)	.975	.980	.053
The department demonstrates a strong commitment to diversity	.709			
Faculty in my major are approachable	.666			
There is high quality teaching in this major	.613			
I have a peer support network among students in my major	.583			
I feel confident I will succeed in my major	.571			
My grades reflect how much I have learned	.546			
*Previous Major Too Competitive**	(α = .907)	.991	1.00	.000
Students were too competitive in my previous major	.915			
Courses in my previous major were too difficult	.862			
Courses in my previous major required too much time	.834			
I was not able to take the courses I needed in my previous major	.808			
Course materials were too expensive	.664			
COMMUNITY COLLEGE STUDENTS' TRANSFER PATHWAY				
*Institutional Transfer Culture**	(α = .907)	.961	.966	.059
Counselors make transfer a priority at this institution	.782			
Faculty make transfer a priority at this institution	.773			
Administrators make transfer a priority at this institution	.759			
It's easy to find help for applying to colleges/universities here	.759			
This campus actively helps students/parents	.736			

apply for financial aid				
Students learn about transfer requirements at college entry	.714			
This campus proactively distributes transfer information to students	.713			
Faculty and staff understand the academic, cultural, social, and economic needs of students who go here	.684			
Class sections are available in the evening	.555			
This community college promoted transfer at my high school	.523			
Student services are available for night students	.474			
Navigational Barriers	α = .742	.987	.989	.052
Schedule classes for the next semester	.759			
Access support services outside of 'regular' business hours	.680			
Figure out which courses count towards your goals	.648			
Have time to do schoolwork	.527			
Find parking	.499			
*Navigating Transfer Preparation**	(α = .848)	.975	.979	.056
Talked to a peer advisor about transferring	.812			
Met with a community college counselor about transferring	.784			
Talked with a transfer admissions counselor from a four-year institution	.716			
Attended a college fair	.665			
Was encouraged by faculty or staff to participate in an academic summer program linked with a four-year institution	.631			
Discussed my academic goals with faculty	.595			
Taken courses that provided transfer, financial aid and study skills information	.478			
TRANSITION EXPERIENCES FOR TRANSFER STUDENTS AT 4-YEAR INSTITUTIONS				
*Pre-Transfer Institutional Support**	(α = .782)	.985	.993	.040
I received helpful advice about the right courses to complete the requirements to transfer	.784			
The guidelines for transferring to this institution were easy to understand	.664			
The courses I took prepared me for the academic demands here	.661			
There was helpful online information	.548			

available about how to transfer here (e.g. websites)				
I worked with a transfer specialist/advisor from this institution to apply or choose courses	.545			
*Post-Transfer Academic Adjustment**	α = .873	.982	.988	.056
Adjust to the academic demands	.857			
Develop effective study skills	.819			
Manage my time effectively	.800			
Understand what my professors expect of me academically	.680			
Felt overwhelmed by academic expectations	.596			
Manage my family/work responsibilities and schoolwork	.582			
Manage my money effectively	.427			
*Post-Transfer Institutional Support**	(α = .782)	.993	.996	.039
Campus administrators care about what happens to transfer students	.851			
I have received helpful advice about how to succeed here as a transfer student	.755			
Faculty here take an interest in the success of transfer students	.712			
Many transfer students feel lost once they enroll (reverse coded)	.460			
*Post-Transfer Navigational Ease**	(α = .837)	.979	.988	.050
Learn what resources are available on campus	.869			
Find help when I need it	.822			
Figure out which requirements I need to graduate	.725			
Find information helpful to me as a transfer student	.724			
Enroll in the courses I need	.534			
Get to know my way around campus	.467			
Make friends	.463			

*Robust ML Model-Fit Indices

APPENDIX E: Sample Reports

CIRP COOPERATIVE INSTITUTIONAL RESEARCH PROGRAM at the HIGHER EDUCATION RESEARCH INSTITUTE AT UCLA

Diverse Learning Environments Survey

Institutional Profile Report

Freshmen

Sample University	Total			Men			Women			Factor
	Your Inst	Comp 1	Comp 2	Your Inst	Comp 1	Comp 2	Your Inst	Comp 1	Comp 2	
Please indicate the extent to which you agree or disagree with the following statements. This college:										
Accurately reflects the diversity of its student body in publications (e.g. brochures, website)										
Strongly agree	29.9%	28.5%	28.5%	29.7%	26.8%	26.7%	30.0%	29.4%	29.5%	
Agree	59.9%	56.4%	56.4%	61.7%	57.1%	57.1%	59.1%	56.0%	56.0%	Institutional
Disagree	8.8%	13.0%	13.0%	7.9%	14.0%	14.0%	9.2%	12.4%	12.5%	Commitment
Strongly disagree	1.4%	2.1%	2.1%	0.8%	2.1%	2.1%	1.7%	2.1%	2.1%	to Diversity
Total (n)	850	2,234	2,227	266	801	798	584	1,433	1,429	
Mean	3.18	3.11	3.11	3.20	3.09	3.08	3.17	3.13	3.13	
Standard deviation	0.64	0.70	0.70	0.61	0.70	0.70	0.66	0.70	0.70	
Significance	-	*	*	-	*	*	-			
Effect size	-	0.10	0.10	-	0.16	0.17	-	0.06	0.06	
Appreciates differences in sexual orientation										
Strongly agree	35.5%	39.8%	40.0%	35.7%	37.7%	37.8%	35.4%	41.0%	41.1%	
Agree	61.1%	55.7%	55.8%	60.5%	56.3%	56.4%	61.3%	55.4%	55.5%	Institutional
Disagree	3.1%	4.0%	3.9%	3.4%	5.5%	5.4%	2.9%	3.2%	3.1%	Commitment
Strongly disagree	0.4%	0.4%	0.3%	0.4%	0.5%	0.4%	0.3%	0.3%	0.3%	to Diversity
Total (n)	850	2,237	2,230	266	801	798	584	1,436	1,432	
Mean	3.32	3.35	3.35	3.32	3.31	3.32	3.32	3.37	3.38	
Standard deviation	0.55	0.58	0.57	0.55	0.60	0.59	0.54	0.56	0.56	
Significance	-			-			-		*	
Effect size	-	-0.05	-0.05	-	0.02	0.00	-	-0.09	-0.11	
Promotes the appreciation of cultural differences										
Strongly agree	43.2%	42.5%	42.5%	42.1%	40.1%	40.0%	43.7%	43.8%	43.9%	
Agree	53.4%	52.5%	52.5%	54.9%	53.8%	53.8%	52.7%	51.8%	51.7%	Institutional
Disagree	3.1%	4.3%	4.3%	2.6%	5.0%	5.0%	3.3%	3.9%	3.9%	Commitment
Strongly disagree	0.4%	0.7%	0.7%	0.4%	1.1%	1.1%	0.3%	0.5%	0.5%	to Diversity
Total (n)	850	2,233	2,226	266	800	797	584	1,433	1,429	
Mean	3.39	3.37	3.37	3.39	3.33	3.33	3.40	3.39	3.39	
Standard deviation	0.57	0.60	0.60	0.56	0.62	0.62	0.57	0.59	0.59	
Significance	-			-			-			
Effect size	-	0.03	0.03	-	0.10	0.10	-	0.02	0.02	

COOPERATIVE INSTITUTIONAL RESEARCH PROGRAM
at the HIGHER EDUCATION RESEARCH INSTITUTE AT UCLA

Diverse Learning Environments Survey

Factor Report

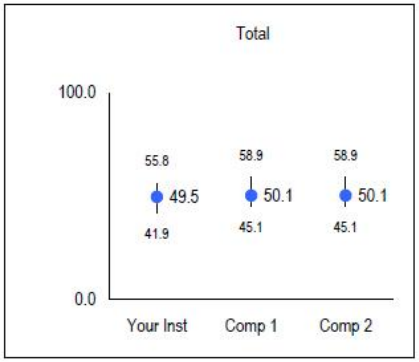
Pluralistic Orientation

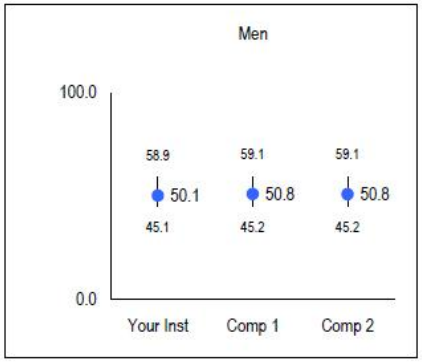
Full-time Respondents

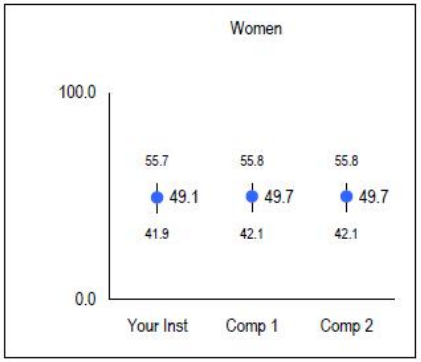
Pluralistic Orientation measures skills and dispositions appropriate for living and working in a diverse society.

Sample University	Total			Men			Women		
	Your Inst	Comp 1	Comp 2	Your Inst	Comp 1	Comp 2	Your Inst	Comp 1	Comp 2
Total (n)	4,903	13,325	13,058	1,819	5,171	5,083	3,084	8,154	7,975
Mean	49.5	50.1	50.1	50.1	50.8	50.8	49.1	49.7	49.7
Standard Deviation	10.11	10.07	10.09	10.39	10.36	10.38	9.92	9.86	9.87
Significance	-	***	***	-	**	*	-	**	*
Effect Size	-	-0.06	-0.06	-	-0.07	-0.06	-	-0.05	-0.05
25th percentile	41.9	45.1	45.1	45.1	45.2	45.2	41.9	42.1	42.1
75th percentile	55.8	58.9	58.9	58.9	59.1	59.1	55.7	55.8	55.8

Note: Significance * p<.05, ** p<.01, *** p<.001







Survey items and factor loadings:

Rate yourself on each of the following traits as compared with the average person your age:

* Tolerance of others with different beliefs	0.703	* Ability to see the world from someone else's perspective	0.659
* Openness to having my own views challenged	0.691	* Ability to discuss and negotiate controversial issues	0.657
* Ability to work cooperatively with diverse people	0.690	**Cronbach's α = 0.810**	

CIRP COOPERATIVE INSTITUTIONAL RESEARCH PROGRAM at the HIGHER EDUCATION RESEARCH INSTITUTE AT UCLA

Diverse Learning Environments Survey
Theme Report
Navigational Action
Full-time Respondents

Navigational Action illustrates how often students participated in institutional programs or how often students engage in activities that would help them successfully traverse the institution.

	Total			Men			Women		
Sample University	**Your Inst**	**Comp 1**	**Comp 2**	**Your Inst**	**Comp 1**	**Comp 2**	**Your Inst**	**Comp 1**	**Comp 2**
Since entering this college, how often have you:									
Used the college's website to learn about campus resources									
Frequently	36.3%	38.8%	38.6%	32.6%	35.5%	35.3%	38.5%	40.9%	40.8%
Occasionally	52.9%	51.1%	51.3%	54.0%	52.4%	52.5%	52.3%	50.3%	50.5%
Not at all	10.8%	10.1%	10.1%	13.4%	12.1%	12.2%	9.3%	8.8%	8.8%
Total (n)	4,905	13,370	13,103	1,818	5,189	5,101	3,087	8,181	8,002
Mean	2.25	2.29	2.29	2.19	2.23	2.23	2.29	2.32	2.32
Standard deviation	0.64	0.64	0.64	0.65	0.65	0.65	0.63	0.63	0.63
Significance	-	***	***	-	*	*	-	*	*
Effect size	-	-0.06	-0.06	-	-0.06	-0.06	-	-0.05	-0.05
Participated in study groups									
Frequently	24.3%	26.1%	26.1%	22.2%	25.0%	25.0%	25.4%	26.8%	26.8%
Occasionally	57.4%	55.7%	55.7%	56.8%	54.4%	54.4%	57.7%	56.5%	56.5%
Not at all	18.4%	18.2%	18.3%	21.0%	20.6%	20.7%	16.9%	16.7%	16.8%
Total (n)	4,903	13,371	13,104	1,817	5,189	5,101	3,086	8,182	8,003
Mean	2.06	2.08	2.08	2.01	2.04	2.04	2.09	2.10	2.10
Standard deviation	0.65	0.66	0.66	0.66	0.67	0.67	0.64	0.65	0.65
Significance	-			-			-		
Effect size	-	-0.03	-0.03	-	-0.04	-0.04	-	-0.02	-0.02
Read this college's catalog (paper or online)									
Frequently	22.6%	22.3%	22.5%	21.5%	21.1%	21.2%	23.2%	23.1%	23.4%
Occasionally	53.5%	52.6%	52.5%	54.1%	52.4%	52.2%	53.1%	52.7%	52.6%
Not at all	23.9%	25.1%	25.0%	24.4%	26.5%	26.6%	23.7%	24.2%	24.0%
Total (n)	4,905	13,360	13,093	1,819	5,186	5,098	3,086	8,174	7,995
Mean	1.99	1.97	1.98	1.97	1.95	1.95	2.00	1.99	1.99
Standard deviation	0.68	0.69	0.69	0.68	0.69	0.69	0.68	0.69	0.69
Significance	-			-			-		
Effect size	-	0.03	0.01	-	0.03	0.03	-	0.01	0.01

APPENDIX F: Presentations

Alvarez, C. L., Arellano, L., Colin, L., Cuellar, M., Hurtado, S., & Guillermo-Wann, C. (May 2009). *Assessing diverse learning environments: Integrating assessments of campus climate, practices, and outcomes*. Research presented at the 22nd Annual National Conference on Race & Ethnicity in American Higher Education. San Diego, CA.

Alvarez, C. L., Hurtado, S., & Guillermo-Wann, C. (June 2010). *Diverse Learning Environments: A new assessment and plan of action to transform the campus climate*. Research presented at the 23rd Annual National Conference on Race & Ethnicity in American Higher Education. National Harbor, MD.

Arellano, L., Guillermo-Wann, C., Hurtado, S., & Colin, L. (2010, April). *Mobility, time to degree, and institutional practices: Towards a new conceptual model of undergraduate retention*. Paper presented at the annual meeting of the American Educational Research Association, Denver, CO.

Arellano, L., Guillermo-Wann, C., Cuellar, M., Alvarez, C. L.Johnson-Ahorlu, R., & Hurtado, S., (Nov. 2011). *Validating the multidimensionality of the campus climate for diversity*. Paper presented at the Association for the Study of Higher Education 36th Annual Conference. Charlotte, NC.

Cuellar, M., Arellano, L., & Guillermo-Wann, C. (2012, March). *Latina/o college access, campus climate, and degree completion: Uncovering differences across ethnic groups and multiracial Latina/os.* Presentation at the American Association of Hispanics in Higher Education. Costa Mesa, CA.

Guillermo-Wann, C. (2012, November). *Examining discrimination and bias in the campus racial climate: Multiple approaches and implications for the use of multiracial college student data.* Paper presentation at the bi-annual Critical Mixed Race Studies conference. Chicago, IL.

Guillermo-Wann, C., Hurtado, S., & Alvarez, C. (2013, May). *Why we get around: A mixed methods understanding of college student enrollment mobility*. Paper presentation at the Association of Institutional Research annual meeting. Long Beach, CA.

Hughes, B., & Hurtado, S. (2012, November). *College experiences that contribute to students' thinking about their sexual orientation identity.* Paper presented at the Association for the Study of Higher Education annual meeting. Las Vegas, NV.

Hurtado, S. (2009). Developing frameworks for conducting assessment with diversity at the center. Georgia System Conference. Atlanta, GA.

Hurtado, S. (2010, October). *Understanding climate, practices, and outcomes: Approaches and research findings on college campuses*. St. Mary's College. Los Angeles, CA.

Hurtado, S. (2010, August). *Diversity and student success: Promoting diverse learning environments.* Opening Day, San Mateo Community College District. San Mateo, CA.

Hurtado, S., & Ruiz Alvarado, A. (2012, December). *From research to practice: How do we know what works for students?* Student Success Collaborative Meeting. Santa Fe, NM.

Hurtado, S., Arellano, L., Cuellar, M., Alvarez, C. L., Guillermo-Wann, C. (Nov. 2009). *Diverse Learning Environments: A conceptual framework for creating and assessing student success*. Paper presented at the Association for the Study of Higher Education 34th Annual Conference. Vancouver B.C., Canada.

Hurtado, S., Arellano, L., Cuellar, M., Guillermo-Wann, C., Alvarez, C. L., & Colin, L. (May/June 2009). *The climate for diversity: Studying student perceptions and experiences in the first year of college*. Paper presented at the Association for Institutional Research's 49th Annual Forum. Atlanta, GA.

Hurtado, S., Cuellar, M., & Alvarez, C. L. (Oct. 2010). *Campus climate, effective practices, and student outcomes in diverse learning environments*. Research presented at the Association of American Colleges and Universities Annual Network for Academic Renewal Conference. Houston, TX.

Hurtado, S., Cuellar, M., & Guillermo-Wann, C. (2012, April). *Quantitative measures of students' sense of validation: Advancing the study of diverse learning environments.* Paper presented at the American Educational Research Association annual meeting. Vancouver, B.C., Canada.

Hurtado, S., Cuellar, M., Guillermo-Wann, C., & Velasco, P. (2010, May). *Empirically defining validation, sense of belonging, and navigational actions for students in diverse institutions: The Diverse Learning Environments survey*. Paper presented at the 50th annual forum for the Association for Institutional Research, Chicago, IL.

Hurtado, S., DeAngelo, L., Guillermo-Wann, C., Sugitparapitaya, S., & Kamimura, A. (2010, October). *Stayers, swirlers, and re-enrollers: Understanding the trajectories of college students.* Presented at the Association for American Colleges and Universities' meeting Facing the Divides: Diversity, Learning and Pathways to Inclusive Excellence, Houston, TX.

Hurtado, S. & Ruiz Alvarado, A. (2012, December). *From research to practice: How do we know what works for students?* Presentation at the Walmart Foundation, AIHEC, HACU, NAFEO Student Success Collaborative Meeting. Santa Fe, NM.

Hurtado, S., Ruiz, A., & Guillermo-Wann, C. (2011, May). *Thinking about race: The salience of racial and ethnic identity and its relationship to perceptions of campus climate.* Paper presented at the 51st annual forum for the Association for Institutional Research, Toronto, Canada.

Hurtado, S., Ruiz Alvarado. A., & Guillermo-Wann, C. (2012, November). *Inclusive learning environments: The relationship between validation and sense of belonging.* Paper presented at the Association for the Study of Higher Education annual meeting. Las Vegas, NV.

Hurtado, S., Ruiz, A., & Whang, H. (2012, June). *Assessing students' social responsibility and commitment to public service.* Paper presented at the Association of Institutional Research Annual Forum. New Orleans, LA

Johnson-Ahorlu, R., Alvarez, C. L., & Hurtado, S. (Nov. 2011). *Undermining the Master Plan: California divestment in higher education & student degree progress*. Paper presented at the Association for the Study of Higher Education 36th Annual Conference. Charlotte, NC.

Ruiz, A., & Hughes, B. (2012, October). *Curriculum as window or mirror: How a curriculum of inclusion is associated with academic validation in the classroom*. Presented at the Association of American Colleges and Universities Annual Conference. Baltimore, MD

Ruiz, A., & Hurtado, S., (2012, March). *Improving time to degree: Enrollment patterns that help Latina/os graduate.* Presentation at the American Association of Hispanics in Higher Education. Costa Mesa, CA.

Ruiz Alvarado, A. & Hurtado, S. (2013, April). *Growing during troubled times: Latina/o student experiences with multiple dimensions of the campus climate*. Paper presentation at the American Educational Research Association annual meeting, San Francisco, CA.

Ruiz Alvarado, A., & Hurtado, S. (2012, November). *Intersectionality and higher education research.* Symposium at the Association for the Study of Higher Education annual meeting. Las Vegas, NV.

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APPENDIX G: Staff and Research Analysts

Sylvia Hurtado, Ph.D., is Professor and Director of the Higher Education Research Institute at UCLA's Graduate School of Education and Information Sciences. She has conducted several national projects on diverse learning environments and retention, longitudinal studies to understand diversification of the scientific workforce, preparing students for a diverse democracy, and faculty innovation in undergraduate education. She obtained her Ph.D. in Education from UCLA, Ed.M. from Harvard Graduate School of Education, and B.A. in Sociology from Princeton University.

Cynthia L. Alvarez, M.A., is a doctoral candidate in the Higher Education and Organizational Change division at UCLA's Graduate School of Education & Information Studies and is a Research Analyst for the Higher Education Research Institute (HERI). Her research interests include college access, the Latina/o college choice process, and the influence of family dynamics in the development of college-going perceptions and aspirations. Alvarez earned both her M.A. in Education and her B.A. in Chicana/o Studies and Women's Studies at UCLA.

Lucy Arellano, Ph.D., holds an assistant professor position at Oregon State University, and served as the Research and Assessment Specialist in the Office of the Vice Chancellor for Students at the University of Hawaii at Manoa after working on a dissertation that builds on the DLE project. Her research interests include persistence and retention for emerging majority students, diversity, campus climates, campus engagement, and student co-curricular involvement. Dr. Arellano earned her Ph.D. in Education from the Higher Education and Organizational Change division at UCLA's Graduate School of Education & Information Studies, and her M.A. in Higher Education Administration from the Center for the Study of Higher and Postsecondary Education at the University of Michigan. She also received her B.A. from the University of Michigan -majoring in Computer Animation, American Culture, and Latina/o Studies.

Luz Colin, M.A., attended UC Irvine to pursue a B.A. in Political Science and Chicano Studies and later attended UCLA to obtain a M.A. in Higher Education and Organizational Change, where she focused her research on educational attainment for first generation low-income students. Currently, Ms. Colin serves as Staffing Coordinator for Computers for Youth (CFY), a national educational non-profit in Los Angeles that helps students in low income communities harness power of digital learning to improve educational outcomes. In this position, Ms. Colin is responsible for recruitment, hiring, training, and scheduling of over 80 part-time employees of CFY.

Marcela Cuellar, Ph.D., is a Postdoctoral Research Associate at the Center for Enrollment Research, Policy, and Practice at the University of Southern California. She has professional experience in higher education research, academic advising and outreach efforts with first-generation, low-income students. Her research interests include Hispanic-serving institutions, college access, campus racial climates, and student success. Dr. Cuellar earned her Ph.D. in Education from the Higher Education and Organizational Change division at UCLA's Graduate School of Education & Information Studies, her M.A. in Higher Education Leadership from the University of San Diego, and her B.A. in Psychology and Spanish from Stanford University.

Kimberly A. Griffin, Ph.D., is an Associate Professor at the University of Maryland in higher education and student affairs, she was Assistant Professor and Research Associate in the Center for the Study of Higher Education at The Pennsylvania State University. Her research interests include mentoring and developmental relationships, the experiences and outcomes of Black students and faculty, access and success of members of underserved communities in higher education, and the influence of campus climate and interactions with diverse peers. She also has professional experience in advising, orientation, and admissions at the undergraduate and graduate levels, having worked at Stanford University and the University of Maryland. Dr. Griffin earned her Ph.D. in Higher Education and Organizational Change from the University of California, Los Angeles, her Master's degree in Education Policy and Leadership at the University of Maryland, College Park, and her Bachelor's degree from Stanford University in Psychology.

Chelsea Guillermo-Wann, Ph.D., is a Research Associate for the Higher Education Research Institute (HERI). Her research interests include the campus climate for diversity, multiraciality, intergroup relations, and student retention and enrollment mobility. She has a professional background in student affairs, academic advising, and outreach with underrepresented students. Dr. Guillermo-Wann earned her Ph.D. in Education from the Higher Education and Organizational Change division at UCLA's Graduate School of Education & Information Studies, her M.A. in Education from the Social Science and Comparative Education division also from UCLA, and her B.A. in Spanish from Westmont College.

Robin Johnson-Ahorlu, Ph.D., is a post-doctoral scholar for the UC/ACCORD Pathways to Postsecondary Success project at UCLA, she previously served as a postdoctoral scholar on the DLE project. She has professional experience in higher education research and project management. Her research is grounded in Critical Race Theory and focuses on the intersections between race, psychology, and campus environments. Dr. Johnson-Ahorlu earned her Ph.D. in Education from the Social Science and Comparative Education division at UCLA's Graduate School of Education & Information Studies. Her M.A. in African Studies and B.A in Political Science were earned from UCLA as well.

Angelica Medoza, M.A., is the Assistant Director of the Latino Resource center at Northern Illinois University. Mendoza earned her M.A. in Education from the Higher Education and Organizational Change division at UCLA's Graduate School of Education & Information Studies and her B.A. from California State University, Dominguez Hills.

Adriana Ruiz Alvarado, M.Ed., is a doctoral candidate in the Higher Education and Organizational Change division at UCLA's Graduate School of Education & Information Studies and is a Research Analyst for the Higher Education Research Institute (HERI). She has a professional background in academic advising and college outreach programs. Her research interests include student enrollment and mobility patterns and campus intergroup relations. Ruiz Alvarado earned her M.Ed. in Student Affairs from the Higher Education and Organizational Change division at UCLA's Graduate School of Education & Information Studies, and her B.A. in Social Welfare from UC Berkeley.

Paolo Velasco, M.A., is a doctoral student in the Higher Education and Organizational Change division at UCLA's Graduate School of Education & Information Studies and is the Assistant Director of the Bruin Resource Center at UCLA. His research interests include the educational benefits associated with campus diversity as well as examining campus support programs for non-traditional students. In his professional work, he directs programs that support various groups of UCLA students including former foster youth, student veterans, students with dependents and undocumented students. Velasco earned his M.A. in Education from the Higher Education and Organizational Change division at UCLA and his B.A. in American Literature and Culture also from UCLA. ❖