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A Re-Examination of Racioethnic Imbalance of IS Doctorates: Changing the Face of the IS Classroom*

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Abstract

There is an extremely low percentage of minority faculty in the IS field. This global trend is highly conspicuous-- a minority of blacks compared to a majority of white academics in England, a minority of Aborigines compared to a majority of white academics in Australia, a minority of blacks compared to a majority of white academics in Canada, and for the purpose of our study, a minority of Native American, Hispanic American, and African American academics compared to a majority of white academics in the United States. Between 1995-2000, not only do AACSB reports indicate a continuous decline in minority business doctorates, but the accreditation body reports that the IS discipline shows a significant under-representation of minority faculty. In this study, we argue that mentoring under-represented groups in the discipline offers the field a myriad of avenues to change the "face" of the classroom and reduce this gap. We examine the absence of racioethnicity and mentoring in the IS field and offer lessons learned from The Ph.D. Project Model for engendering change and mentoring within the IS community. Using data from a six-year period, we discuss diversity issues, lessons learned, and recommendations from mentoring a group of under-represented IS doctoral students.

Keywords: Social Networks, Doctoral Student Racioethnicity, Minorities, Mentoring

* Detmar Straub was the accepting senior editor for this paper.

Introduction

More than one-third of the nation's workers are people of color, as are more than one-fourth of America's college students. But the percentage of racial/ethnic minorities who are faculty in higher education is a small fraction of the total. Nationally, about 5 % are African-American and about 2 % are Hispanic (Southern Regional Education Board, 2003a).

Despite changing demographics of the American workforce, the U.S. Department of Commerce has highlighted a shortage of minorities in Information Technology careers. Evidence further indicates that the under-representation of minorities in the IS academic field continues to mirror that in corporate settings, with a clear gap between the percentage of minorities and that of non-minority academics.

The IS academic community (Freeman, Jarvenpaa and Wheeler, 2000; Jarvenpaa, Ives and Davis, 1991) continues to struggle with fluctuations in demand and supply of IS faculty. These fluctuations are reminiscent of fluctuations in the U.S. job market and remain a problem despite earlier predictions that demand for IS doctorates is expected to outpace supply for another four years (Freeman, et al., 2000). The Freeman et al. prediction was one that most members of the IS community would have made, given that the study was published during a time of exponential growth in available IS faculty positions. However, that growth lasted only until the 2002/2003 period. Despite the fluctuations in demand and supply of IS jobs, one constant in the equation is the acute racioethnic imbalance that continues to exist among IS doctorates in North America. Such an imbalance grows even worse during periods when demand exceeds supply, because the potential supply pool (IS doctoral students) from some ethnic groups is conspicuously missing.

The National Center for Education Statistics (NCES, <http://nces.ed.gov/fastfacts>), the body that reports representation on the overall population, states in its *Salary, Promotion and Tenure Status of Minority and Women Faculty in U.S. Colleges and Universities Report* (March 2002) that African-Americans represent 12% of the U.S. population, but only 5% of university faculty. Hispanic Americans represent 10% of the country's population, but merely 2% of university faculty. For Native Americans, faculty representation was less than 1%; population data went unreported.

In its August 2002 publication, *Management Education at Risk*, AACSB International reported that National Science Foundation data revealed that the number of business doctorates granted between 1995-2000 declined by more than 19%. To compound the problem, only 62% of those newly granted doctorates sought academic positions. In what AACSB defined as "slumping supply and bulging demand," among business school faculties, IS faculty were in highest demand. According to the report, "while vacancy rates for finance, accounting and marketing doctoral faculty had converged to the overall vacancy rate, the 2001-2002 vacancy rate for IS doctoral faculty among AACSB member schools exceeded 14%" (p 14). Seen as the most critical environmental trend driving change among AACSB institutions, the doctoral faculty shortage is said to be at the "choke" point for future direction and change in business education.

The AACSB Doctoral Faculty Commission found that the five leading business doctorate producers declined in their output of new Ph.Ds over the 10-year period from 1991 to

2000. Indiana University-Bloomington, the University of Texas at Austin, Harvard University, University of Illinois at Urbana-Champaign, and Ohio State University were listed as top producers, with an average decline of 27.1%. Interestingly, each of these institutions has a highly recognized IS doctoral program within its business school. Even in light of its extensive recommendations to address the shortages among business school faculty, the AACSB Doctoral Faculty Commission predicts that these trends will persist even until 2012. Moreover, the commission adds that salary escalation and inversion serves to complicate the issue. In particular, salaries for new IS doctorates increased 40% between 1997-2001, while the average increase for other business disciplines was 11.3%.

Using data from the Fall of 2001 AACSB Survey of Faculty Demand, the commission confirmed that colleges and universities actively recruited at 292 U.S. schools to fill 1,100 faculty positions. The commission concluded that the doctoral gap would result in roughly 260 unfilled positions, growing to 1,000 unfilled positions in 2006. The commission goes further to substantiate that "dramatic" shortages persist among minority groups. At the time of the study, African, Hispanic and Native Americans comprised 3.2%, 1.2% and 0.3%, respectively, of full-time business faculty. Given these figures, one can infer that the shortage will persist among under-represented groups.

The value of racioethnicity

While Freeman, et al. (2000) offer six explicit recommendations to address the demand and supply imbalance of IS faculty, none of them addresses the need for IS programs (or departments) to have a focus on recruiting and retaining minority doctorates, even though this group could potentially alleviate the racioethnic gap of IS faculty in North American institutions of higher learning. According to leading organizational behavioral scholars (Nkomo, 1992; Thomas and Wetlaufer, 1996; Elsass and Graves, 1997; Bell and Nkomo, 2001), racioethnicity captures the complexities associated with the cultural affiliation implied in ethnicity and the racial/physical features that can distinguish persons from the majority. Minority representation in IS faculty positions could be very important in making sure that a range of viewpoints is represented in such a fast changing field. Minority IS scholars may have substantially different backgrounds and experiences from those of non-minority faculty, and can "bring insights and perspectives to business schools which would otherwise be overlooked" (Briley and Grier, 1997). For example, minority faculty can offer and communicate culturally diverse perspectives to peers and students regarding IS topics, such as systems development, strategic planning/implementation, and workforce diversity. Thus, if the IS field is to become more pluralistic (Benbasat and Weber, 1996; Robey, 1996) and attract and retain a diverse group of doctorates, it should embrace innovation from a broader segment of the population.

Organizations, such as the Southern Regional Education Board (2003a), have reported that minority faculty tend to attract other minority faculty to an institution, as well as attract undergraduate students to a course of study. In a 2003 survey of 100 U.S. business school deans conducted by The PhD Project, 80% indicated that minority faculty help to attract and mentor more minority students. The deans also reported that the presence of minority faculty significantly impacts the school overall, by educating all students, regardless of race, to be better prepared for a diverse work environment.

Existing organizations have yet to seriously address this issue. For instance, the Association of Information Systems—which is recognized by the AACSB as the voice for IS faculty (Davis, 1999)—does not include increasing the percentage of minority faculty in the discipline on its lists of objectives (<http://www.aisnet.org>).

To study the racioethnic issues of the IS doctorate debate, we consider the Freeman, et al. (2000) supply and demand framework to examine the “new supply” that addresses under-representation of African-, Native- and Hispanic-Americans in the IS community. We describe several mentoring models that seek to increase the number of potential IS and other minority faculty within the academy. In particular, we focus on issues surrounding the racioethnic gap and offer results from six years of interactions with The PhD Project, a network implemented to attract, mentor and retain under-represented students into the IS faculty domain, and recently by extension, through the minority junior faculty tenure process. Although our paper focuses on IS minority doctorates in the United States, it must be noted that this is not just an “American” issue. Minorities in other “Western” countries, such as the Aborigines in Australia¹, share similar experiences.

Background: The Dearth of Minority IS Doctorates

Supply and demand models

Recent research (Freeman, et al., 2000) on the supply and demand of IS faculty has suggested that the field is experiencing an imbalance between the number of faculty positions available and the candidates eligible to fill these positions. These findings are based on 1998 data and run counter to a much more optimistic 1991 report by Jarvenpaa, et al. (1991). Freeman, et al. (2000) hold that imbalances can result either from short-term anomalies that can self-correct or from long-term structural mechanisms internal and external to the academy. Typically, stakeholders can select institutional and/or departmental “coping” strategies to address these deficits. In the Freeman et al. model, they indicate that the supply pool is based on two groups: existing faculty and doctorates potentially seeking to enter the academy. The “new supply” is the focal point of our work – as it captures the number of applicants, graduates, and those seeking faculty positions.

While the Freeman, et al. (2000) model offers much needed structure to understand the current and future demand and supply in the IS field, we suggest that an understanding of the human side is critical. In particular, the changing ‘face’ or faculty of the IS classroom in North American universities may be a step toward diversifying its student population. As in many technical disciplines, such as engineering and computer science, the ‘face’ of the IS classroom, in terms of minority faculty, is overwhelmingly under-represented (The PhD Project, 2003; Altbach and Lomotey, 1991; Southern Regional Education Board, 2003a; Merget, 1994; Alger, 2000). The Freeman et al. model does not provide a method for *how* to increase the numbers, such as establishing retention mechanisms and mentoring programs for doctoral students or junior faculty.

¹ Similar to Native Americans in the US, the Aborigines are Australia's first inhabitants. They have, however, been disadvantaged and share much lower socio-economic and educational status compared to the predominantly white Australian population.

Addressing the Dearth of Minority IS Doctorates

Mentoring

Mentors Peer Resources², arguably the largest repository of academic and practitioner articles related to mentoring, has depicted the features of a formal mentorship as follows:

- a deliberate, conscious, voluntary relationship that may or may not have a specific time limit;
- that is sanctioned or supported by the corporation, organization, or association (by time, acknowledgement of supervisors or administrators, or is in alignment with the mission or vision of the organization);
- that occurs between an experienced, employed, or retired person (the mentor) and one or more other persons (the partners);
- where the outcome of the relationship is expected to benefit all parties in the relationship (albeit at different times) for personal growth, career development, lifestyle enhancement, spiritual fulfillment, goal achievement, and other areas mutually designated by the mentor and partner; and,
- typically focused on interpersonal support, guidance, mutual exchange, sharing of wisdom, coaching, and role modeling.

Much of the academic and practitioner literature speaks glowingly about the effects of mentoring in recruiting and retaining minorities in academia (Hawk Link, 2004; Kelly and Llacuna, 2002; Jacobi, 1991) and industry (Goo, 2001; Thomas, 2001; Mehta, 2001). Pfleeger and Mertz (1995) argue that “a major problem in attracting and keeping women and minorities in computer science (and other disciplines) is the lack of role models at all levels.” Kelly and Llacuna (2002) illustrate how minority student involvement in Northeastern Illinois University’s Minority Student Mentoring Program (MSMP) has positively impacted retention rates. Compared to their non-mentored cohorts, students that participated in the MSMP experienced a 14.7% higher retention rate. Similarly, in 1998, the HAWK Link program at the University of Kansas adopted several mentoring programs to help its undergraduate students of color succeed. Some of the program components attributing to its success include summer orientation guides, faculty and peer advising and mentoring, academic success programs, and social events (Hawk Link, 2004).

In their article titled *Diversity’s Greatest Challenge: Retention*, Nelson and Farren (1998) contend that while many North American institutions of higher learning have made an effort to recruit minorities, there has been a clear lack of effort in terms of retention. They, therefore, recommend mentoring to address retention issues. These scholars argue that mentors “make up for networking possibilities that women, people of color, and workers with disabilities often miss out on.” Organizational behavioral researchers (Nkomo, 1992; Kwaki, 2003) argue that social networks can be (in)formal in nature, foster relationship building and career success, and substantially impact organizational productivity. Given prevailing challenges, such as fluctuations in available IS faculty positions and several internal political issues in IS academia, there exists a “subtly hidden” rule that networking is a necessity to obtain and retain “good” IS faculty positions from the hire to tenure and promotion ranks.

² See the Web site for Mentors Peer Resources at: <http://www.peer.ca/>

To achieve these desirable outcomes in terms of recruiting and retaining minority IS faculty, researchers (Payton and Jackson, 1999; Cox and Beale, 1997; Thomas and Wetlaufer, 1996; Bell and Nkomo, 2001) have called for a significant degree of attentiveness by those in authority to existing dilemmas. In essence, racioethnic imbalances can be addressed by a critical and core set of stakeholders – namely, leading IS researchers, IS doctoral program directors, deans, full professors, and others who influence the matriculation and retention process.

These stakeholders can also contribute to the recruitment and retention process indirectly by supporting or collaborating with organizations and initiatives that already exist for such purposes. Organizations, such as the Consortium for Graduate Study in Management, Southern Regional Education Board, Florida Education Fund, and The PhD Project have traditionally made herculean efforts to recruit and retain minorities at the graduate level. Some of these programs have been in existence for several years. Early on, they recognized the need for concentrated efforts to provide support for students in disciplines where there is a vast under-representation of minorities. These organizations understand that the necessary human, time, and financial resources must be in place to enable continuous and progressive change. Moreover, measures of success in the context of retention, graduation rates, and tenure are difficult to gauge – as these processes are slow, progressive, and can require an extensive horizon.

One commonality shared by the above organizations is annual meetings, which involve activities that create and support a *learning process* for minority students through mentoring, sponsors, peer-to-peer interactions, alumni testimonials, and social networks. These programs underscore the fact that successful recruitment, retention, and placement is a progressive, learning process. The next section discusses this learning process.

Learning through Student Interactions

The learning process that one undertakes to successfully complete a doctoral program closely parallels the learning process of new hires in academia who are seeking tenure and promotion which, in turn, closely mimics the model one follows in the business world. Candidates need to establish an intricate web of formal and informal mentors, sponsors, and role models in order to successfully navigate the corporate ranks (Thomas, 2001; Payton and Jackson, 1999). The web of support built through mentoring and role models is a *process* that continuously provides formal and social education and learning through various sources who act as guides and resources.

To understand some of the particular needs of students from under-represented groups and the challenges faced during the matriculation process as well as the tools available for satisfying these needs, we sought to determine: a) the diversity issues confronting IS doctoral students from under-represented groups, b) how these issues affect (un)successful matriculation, and c) alternatives and solutions for improving the matriculation process. This three-pronged approach can be used as a tool to assess the current “New Supply” in the Freeman, et al. (2000) supply and demand framework – thereby distilling lessons learned from the existing minority Ph.D. candidates that will seek faculty positions.

Research and retention issues: the case of The Ph.D. project IS doctoral student association and its new faculty

Graduates of The Ph.D. Project initiative “give back” to (up and coming) doctoral students through mentoring. The experiences shared in this paper reveal only the experiences of the authors as current and past mentors with The Ph.D. Project initiative. Given our involvement as mentors and as untenured faculty, we have become aware of a number of diversity issues that affect faculty from under-represented groups as they maneuver the promotion and tenure process. We discuss these issues and recommendations below.

Issue One: There is a strong need for minority and non-minority mentors on campuses for doctoral students.

Since mentors enable students to maneuver professional and social networks, ideally mentors would be tenured faculty members and know the directives of the departmental culture. During the past six years, students have expressed a bona fide desire to have minority faculty as mentors, but given that less than three percent of all business faculty are African-, Hispanic- and Native-American, finding such people of color is difficult (Payton and Jackson, 1999).

Issue Two: Retention of minority faculty/doctoral students is just as critical as recruitment.

There have been trends to recruit minority faculty:

- to fulfill the ‘minority quota’ usually required of some accrediting bodies;
- through court orders to diversify for some state universities;
- for reasons of affirmative action tied to funding for colleges.

We do not contend that these have been the only reasons for recruiting minority faculty. In fact, we believe in most cases minority faculty are and should be recruited on the basis of their merit. However, we argue that such trends do exist, and where applicable, usually translate to a lack of concern and commitment to retain these faculty members once recruited. Hence, the absence of proper mentoring, and an overload of service activities, such as committee work where a minority ‘face’ is needed to show diversity, are counterproductive to retention. Therefore, there is a compelling need for IS departments to watch for such pitfalls and develop strategies not only to recruit, but to actively cultivate these minority faculty members, particularly during the assistant professorship ranks. The same applies to recruiting and retaining minority IS doctoral students.

Retention data from The Ph.D. Project IS Doctoral Student Association (ISDSA) shows that in the years 1996-2001 nine of a total 72 students (five Hispanic, one Native- and three African-Americans) withdrew from their doctoral programs. This represents less than a 3% annual dropout rate. Reports in *Black Issues in Higher Education* by Roach (2001) indicate that the annual dropout rate among ALL business doctoral students is 25%. While several reasons were cited regarding termination of matriculation, such as personal and medical reasons, follow-up data reveal that in six of the nine cases, students noted failure to meet major milestones in their programs, such as passing qualifying exams after more than one attempt, and economic considerations, such as starting business ventures or continuing with a career in corporate IS. Though these

former students had attended prior ISDSA conferences and established mentoring relationships with other students and/or faculty mentors, one student summed up his rationale for withdrawing from his doctoral program as follows:

"I really examined where I am. I have a corporate job which is rewarding. The PhD process is a type of servitude which I do not need in my life. Economically, emotionally and career-wise, I am better off without it".

Issue Three: Mentoring during the early stages of one's career can hold negative implications for untenured faculty.

While mentoring provides benefits to both the mentee and the mentor, there are some downsides to being a mentor in the early stages of one's career. Two potentially negative impacts are time pressures and political implications. Mentoring can be very time-consuming and can be seen as an activity that distracts from the requirements of research/publishing and teaching. Second, junior faculty must be aware of the culture of the school. Success in the field requires a delicate balancing act among the demands of teaching, research, and service activities (Whitman, et al., 1999). While fostering relationships with students, in general, and minority students, in particular, can take an exorbitant amount of time and effort, universities often view these tasks as service – which counts for little in the tenure process. Because of the pressures associated with tenure, not all under-represented minority faculty want to be accountable for mentoring minority doctoral candidates, and often there is a "penalty" associated with minority faculty-to-minority student mentoring.

Mentoring via The PhD Project Activities

To embed mentoring in The Ph.D. Project, faculty conference planners have incorporated two critical elements for minority doctoral students and junior faculty: 1) annual conference sessions on IS research from leading scholars in the field and 2) an alumni group to foster research collaboration. The research sessions were the brainchild of the 1998 planning committee and follow a model used by the preceding Ph.D. Project Accounting Student Association. These sessions involve IS journal editors (*MIS Quarterly, ISR, JMIS, etc.*) as well as some of the field's leading researchers who present guidelines on research streams, do's and don'ts of manuscript preparation, the journal submission process, and how to respond to reviewers' comments.

In other conference sessions, participants actually present their research and have a seasoned scholar critique their work. Editors and/or researchers who have participated include Izak Benbasat, Michael Ginzberg, Blake Ives, Sirkka Jarvenpaa, Ken Kendall, Julie Kendall, John King, Allen Lee, Poppy McCloud, Detmar Straub, Vladimir Zwass, and Robert Zmud, just to name a few. While these and other IS scholars have provided insights into the publication and tenure processes, students and untenured minority faculty are strongly encouraged to establish (in)formal mentoring relationships with senior faculty who are willing to mentor or offer advice.

As of 2003, association alumni have formed The Ph.D. Project IS Faculty Group to foster peer research initiatives. A clear example of this group's agenda is this research paper, which includes two alumni and one member of the first PhD Project IS Conference Planning Committee. Alumni engage in initial readings of manuscripts prior to formal

journal submissions, methodological reviews and consultations, and conference paper preparation and presentations. The alumni also share a listserv to post questions about ongoing research and get help from peers and senior faculty. Members of this new association seek mentors to help junior faculty and students maneuver the publication and tenure process. To foster this process, we seek minority and majority mentors to help facilitate the research, teaching, and service requirements. To this end, Allen Lee has volunteered to advise and mentor this group, and we continue to develop these types of relationships.

Implications

Although we focused on the U.S. in this study, the issue of minority under-representation in academics is a worldwide phenomenon. As we earlier mentioned, these cases are pronounced in countries such in England and Canada. While it is true that you would see more minority academics in these two countries than in the U.S., the reality is that most of them are not native to England or Canada. We believe this study will spur to action the academic community in these and many other countries that are confronted with the issue of recruiting and retaining ethnic minorities in their colleges and universities.

In the past few years, numerous legal attacks on affirmative action “have made colleges and universities nervous about their efforts to recruit faculty (as well as students) from underrepresented minority groups” (Alger, 2000). African-, Hispanic-, and Native-Americans hold less than 3% of the IS faculty posts in the United States (Payton and Jackson, 1999; <http://nces.ed.gov/fastfacts>, 2002). Many university officials have admitted to the fact that “their searches for minority faculty hires are often fruitless because the pool of qualified candidates is very small” (Briley and Grier, 1997).

A possible solution to this dilemma is for the academy to take practical steps in embracing diversity as a part of its organizational culture and strategy by implementing formal and informal mentoring and social networks, which have proven to be most effective for minorities. The Ph.D. Project, as discussed here, is just one model of a formal network that provides an intimate view of doctoral student matriculation and gives insight into scenarios that influence decisions to embark on doctoral degrees, thereby addressing racioethnic imbalances. The issues raised and arguments propounded in this paper have important implications, guiding principles for action, and recommendations for faculty, academic administrators, and students, given that these groups are viewed as stakeholders in higher education (Freeman et al., 2000).

Implications for stakeholders

The dearth of IS doctorates from minority groups comes with major implications for most IS programs. Looking at the average IS program, it is commonplace that most IS students graduate without ever having an IS professor from an under-represented group in the course of their study. If one goal of most universities is to diversify the academic community (as stated in many documents), then these universities have a long way to go to reach it. Moreover, if we believe that minority faculty can bring unique perspectives to the business classroom, our students are being deprived of this important benefit—one that majority faculty members may find difficult and sensitive to discuss. Furthermore, the growing gap between minority and non-minority doctorates is depriving minority IS students of potential mentors who could help them through their undergraduate or

graduate programs. This lack of role models could explain the low levels of minority students in IS programs. Again, we believe diversifying the face of the IS classroom will diversify its audience in the long-run.

Guiding principles for action

To begin to understand the scope of the challenge, and more important, to develop momentum for change, we examined how members of the IS Ph.D. Project Student Association view their doctoral experiences, and what lessons we learned as mentors in the early stages of our academic careers. While we articulate recurring themes that were captured over a six-year horizon, business schools (or IS departments) adhering to the awareness, understanding and action stages of any learning process for change should not forgo measuring, monitoring, refining, and training in the context of diversity.

Recommendations to IS faculty, academic administrators, and students³

In order to draw practical lessons from these recurring themes, IS departments must go beyond just having verbiage in their mission statements indicating the need for diversity. Schools of business (or whichever college houses the IS program) should have committees that monitor and address minority issues, and IS departments should consider designating one or more of their faculty members as minority 'recruiting and retaining' champions. Such faculty members will seek and identify outstanding minority undergraduate or graduate students who are potential doctoral students. Such a move could be internal or could involve visiting other schools (within the same geographical area, including HBCUs, HSIs, and Tribal Colleges) to attract such students. This would also imply that IS departments will reward such faculty members in terms of service to the department. We caution that these faculty members do not necessarily have to be minority faculty, as we believe there are many non-minority faculty members concerned with recruiting and retaining minority IS doctoral students. These faculty champions could be proactive in approaching and mentoring minority students within their departments, helping them to maneuver the social and political aspects of doctoral matriculation that could hamper their progress. More so, such a mentoring relationship, if successful, could extend to helping these students find jobs upon graduating and also through their first few years as junior professors and beyond.

Minority IS doctoral students must also play their part. We strongly discourage these students from displaying a 'self-exclusionary' attitude by isolating themselves from other non-minority students and faculty for fear of discrimination or other race-related problems. Since the average IS faculty member is extremely busy with tenure, promotion, and other issues that pertain to their professional development, it is imperative that minority IS doctoral students take the initiative to identify and contact potential mentors within their first two semesters in the doctoral program.

³ Note that these are our recommendations and could have some legal implications. As such, it is imperative that institution's Equal Employment Opportunity (EEO) and/or Affirmative Action (AA) Offices are consulted before implementing our recommendations. We have discussed our recommendations with EEO and AA experts; they have agreed that our recommendations are within legal guidelines. In cases of minority programs and/or funding, we were advised that such initiatives cannot exclude any candidate/applicant. This has been the result of the 1978 Bakke Supreme Court case.

As mentioned earlier, recruitment is critical to increasing the number of IS doctoral students. One of the main factors that has precluded some outstanding minority students from joining doctoral programs is the dated belief that test scores are the primary criterion for admission. It is a well-known fact that minority students have not traditionally performed as well as their majority counterparts on standardized tests of any kind: SAT, ACT, GRE, GMAT, and so forth. In a civil action lawsuit filed at the United States District Court in Michigan, the judge ruled that standardized test scores (LSAT in this case) were clearly biased against African Americans (White, 2001). While we will not pursue a discussion here about how test scores are often biased against minorities, there is continual debate regarding the correlation between standardized test scores and the likelihood of success in graduate programs (Malone, Nelson and Van Nelson, 2001). Notwithstanding this, most IS programs still use the GMAT or the GRE as the main "ruler" when considering doctoral candidates thus, omitting a pool of potential minority applicants. Thus, using the GMAT, as a "predictor," often causes the admission process to ignore previous academic success at both undergraduate and master's levels. Many minority students do not even apply to doctoral programs (IS included) because the tests often discourage them (Briley and Grier, 1997). It is, therefore, important that IS doctoral admissions committees look beyond standardized test scores when evaluating minority (and non-minority) students' application packages.

IS departments can expand their efforts to recruit potential outstanding minority and non-minority students by closely looking at their own undergraduate and graduate students. Departments can create special programs that encourage these students to pursue doctorates, including both academic and social events where the students can interact with faculty in formal settings (Hawk Link, 2004).

Funding is often a major barrier for minority students to pursue graduate degrees, which in turn could eventually lead the students to pursue doctoral degrees. IS departments should make it a priority to distribute graduate assistantships in an equitable manner so that all students have an equal share of such resources. Furthermore, IS departments could seek funding from local and federal agencies to provide scholarships for minority students so they can pursue graduate programs that could eventually lead to the doctorate. Business schools can lobby entities, such as the National Science Foundation, to seek funding to support these efforts.

Regardless of rank, faculty members involved in mentoring and other programs to recruit and retain minority doctoral students should be given certain incentives. In particular, they could be granted reduced teaching loads, increased graduate assistance, and/or limitations on service activities, such as committee involvement. Moreover, given that mentors do not necessarily have to come from the student's academic department, IS departments could collaborate with other departments, such as engineering and computer science, to identify faculty mentors. Of course, priority should be given to mentors from disciplines closely related to IS or the student's area of research interest.

Another practical step is for IS departments and faculty members to align themselves with minority mentoring organizations, such as The Ph.D. Project, which holds informational sessions for potential doctoral candidates and university representatives every November. During these sessions, IS faculty members can meet a large pool of potential minority doctoral students and faculty members. In conjunction, The Ph.D. Project provides each departmental or college representative with a booth to advertise doctoral programs and answer questions from potential students. Furthermore, The

Ph.D. Project hosts IS mentoring sessions prior to the AMCIS conference. This venue provides an opportunity for IS faculty members (regardless of race) to volunteer to be mentors and to share information with the minority IS doctoral students who attend these sessions (see more on The Ph.D. Project Web site, <http://www.phdproject.org/>).

Doctoral student experiences, to a large degree, mirror those of junior faculty, thus we feel that each can benefit from similar formal and informal networks. We understand and are cognizant of how the tenure process works; that is, faculty members earn tenure based on solid research records, and in some universities, tenure is based on a combination of teaching, research, and service. We are, by no means, suggesting that minority faculty be judged based on subpar standards. Rather, we aim to stimulate thought and debate about the field's racioethnic imbalance of IS faculty and potential strategies for recruiting and retaining this group. Mentoring has proven effective in the corporate domain, and we feel that mentoring and networking are critical to success at both the IS doctoral level and the junior faculty level for under-represented groups.

Conclusion

While some would argue that there is a lack of significant representation among under-represented groups in the field due to the economic downturn, we contend that even at the height of economic prosperity, there was no change in minority representation (Trower and Chait, 2002). We add to the diversity and mentoring literatures by offering lessons learned and recommendations pertaining to minority students matriculating in the doctoral process. From a global perspective, the approaches to (and effects of) these recommendations would vary with different institutions, countries, and/or cultures; however, we offer guidelines that can be beneficial to all doctoral students in schools of business worldwide.

Although our paper focuses on U.S. institutions of higher learning, we believe the issues raised and recommendations made offer the IS community insights into how mentoring can be a major impetus for minority students to complete the doctoral process, and hence, carry through to the tenure process as these students become faculty members. If the IS field is to become more pluralistic (Benbasat and Weber, 1996; Robey, 1996), it must embrace innovation from a broader segment of the population.

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