

Variety, Dissimilarity, and Status Centrality in MBA Networks: Is the Minority or the Majority More Likely to Network Across Diversity?

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The value of the networks that MBA students develop is often limited by the tendency of people to favor connections with similar others, resulting in self-segregation among identity groups. To identify the origins of network diversity, a key question for theory and practice is whether majority or minority groups are more likely to develop diverse personal networks. We provide a partial answer to this question by integrating network theory with three conceptual dimensions of diversity: variety, dissimilarity, and status. This conceptualization suggests that individuals can display three distinct types of diversity in their networks with different theoretical antecedents and outcomes. Consistent with theoretical predictions, we find systematic differences between the networks of high-status majorities and low-status minorities in a longitudinal study of MBA student networks. Specifically, minorities show more variety, greater dissimilarity, and lower status centrality in their networks compared to majorities. Tie strength and time period affect the findings in predictable ways. These results demonstrate the value of integrating diversity theory with network theory for understanding the development of inclusive networks in business schools. We conclude by discussing potential remedies to enhance the diversity of MBA student networks.

MBA program administrators and faculty are well aware of the benefits to students of building an extensive personal network that includes a diverse set of connections (Sturges, Simpson, & Altman, 2003). Students gain career benefits from extensive personal networks that connect them to a wide variety

of employment options (Belliveau, 2005; McDonald, Lin, & Ao, 2009; Petersen, Saporta, & Seidel, 2000). Graduates contribute to team creativity and firm effectiveness if their personal networks are diverse (Burt, 2005; Rodan, 2010). Furthermore, the increasingly competitive and dynamic global business

environment has enhanced the importance of a large and diverse personal network for MBA student success. In response to increased competitiveness, organizations have flattened hierarchies and ended lifetime employment. As a result, MBA graduates can expect to need frequent employment information and assistance from their network contacts during the course of their careers (Baruch & Bozionelos, 2010). Dynamic global markets increase demands on organizations to process information, solve problems, and create innovations. As such, MBA graduates can anticipate benefiting from the information and ideas available from an extensive and diverse personal network as they seek to add value to their firms.

Because building a large and diverse network is so important to MBA student success, MBA programs work to create opportunities for students to build personal networks among themselves as well as with program alumni. Learning goals in MBA programs are to develop the skillset required to build and maintain relationships as a key competency for managerial effectiveness (Costigan & Brink, 2015). Through the formal and informal curriculum as well as extracurricular and co-curricular activities (Caza & Brower, 2015), students practice relationship-building skills (Bedwell, Fiore, & Salas, 2014) to develop and strengthen their personal networks during the MBA program. Ideally, MBA students develop constructive networking habits that help them build and maintain personal networks that will benefit themselves and their future employers.

Research findings suggest, however, that MBA programs are only somewhat successful at helping students develop the extensive and diverse networks they will need. MBA students, like the general adult population, develop segregated personal networks such that they build many connections within their own identity groups and relatively few connections across diverse ones (Gibbons & Olk, 2003; Mehra, Kilduff, & Brass, 1998; Mollica, Gray, & Treviño, 2003). Network segregation is termed

homophily and is defined as "the tendency of similar people to associate more often than they would be expected to given their relative numbers in the opportunity pool" (McPherson, Smith-Lovin, & Cook, 2001: 419). Given the value of network extensiveness and diversity in a globalized business environment, homophily in MBA networks suggests that students are not maximizing the potential value of the MBA experience for developing their personal networks (Dobrow & Higgins, 2005).

Little is known, however, regarding the origins of network diversity among MBA students or other adults. Researchers have developed contradictory arguments regarding whether individuals in the dominant majority or the marginalized minority are more likely to develop connections across diversity. Some have argued that homophily is more common among groups in the numerical minority than among members of the dominant majority, suggesting that dominant majority individuals are more likely to create diverse personal networks. Classic research in the Detroit area reported a rank-order correlation of $-.82$ between an ethnic group's size and the homophily of its members' personal networks (Laumann, 1973). More recently, studies examining homophily measures have concluded that marginalized groups in the numerical minority self-segregate, excluding themselves from participation in majority networks (Bacharach, Bamberger, & Vashdi, 2005; Mehra et al., 1998; Mollica et al., 2003). Theorists have provided several possible explanations for this phenomenon, such as the desire to maintain a distinctive identity (Milton & Westphal, 2005), the desire to avoid tokenism or increased scrutiny (Mollica et al., 2003) and the desire to have same-category friends (McPherson et al., 2001).

The notion that marginalized minorities are unlikely to connect across diversity is inconsistent with theory about networking in the workplace. In this context, theory suggests that networking behavior is driven by the utilitarian motive to access organizational resources (Belliveau, 2005; Burt, 2005). Given the greater access to organizational resources enjoyed by the majority group in many organizations, minority group members seemingly have little to gain from self-segregation and should be highly motivated to build connections across diversity with the majority. Consistent with the value of connecting with the majority group, prior research has shown that members of minority groups have more diverse personal networks both in general (Blau, Ruan, & Ardel, 1991; Marsden, 1987) and in

The authors would like to thank Lisa E. Cohen for comments on an earlier draft of the paper, as well as Jen Chang and Candice Tsuei for their research assistance. All mistakes remain the responsibility of the authors. This research was supported by the Social Sciences and Humanities Research Council of Canada, SSHRC Grant No. 864-2007-0086. The first author gratefully acknowledges support from the Corus Entertainment Chair in Women in Management, Ivey Business School. The second author gratefully acknowledges support from the Sauder School of Business, University of British Columbia. An earlier version of this paper was presented at the 2010 meeting of the Academy of Management, Montréal, Québec.

organizational settings (Bevelander & Page, 2011; Ibarra, 1995).

These findings appear to contradict each other by suggesting that numerical minorities simultaneously self-segregate and show greater diversity in their networks compared to the majority group. We develop theory here that resolves this contradiction. We integrate network theory with the diversity concepts of variety, dissimilarity, and status to predict personal network diversity. All demographic groups have a similar interest in building *variety*, defined as diversity among network contacts. Marginalized minorities, however, have a stronger potential reward by maximizing *dissimilarity*, defined as difference between the focal person (known as ego in network theory) and their network contacts. All demographic groups have a similar utilitarian interest in building and maintaining *network status*, defined as centrality in the networks of high-status groups. However, members of the dominant majority are more capable of achieving centrality in high-status networks due to social similarity homophily effects. As such, the amount of diversity shown in the personal networks of minorities and majorities will be similar or different, depending upon how network diversity is conceptualized and measured. Patterns are also likely to differ for strong and weak network ties.

We test these arguments by examining three distinct measures of network diversity in a longitudinal study of 253 MBA students. We contribute to prior work on MBA networks (e.g., Bevelander & Page, 2011) by crossing gender with international student status to examine outcomes for four student groups: specifically, domestic men, domestic women, international men, and international women. We examine friendship networks rather than task or socializing networks to assess the relationships that are most likely to last beyond graduation from the MBA program. Task and socializing networks are likely to be affected by coursework, team assignments, and logistical factors that are not present after graduation, and as such, may not endure among alumni. Friendships, on the other hand, are based upon intimacy resulting from mutual self-disclosure and emotional support (Brissette, Scheier, & Carver, 2002; Fehr, 2004). Friendships benefit students in many ways, including school adjustment, satisfaction, retention, and effective school-to-work transition (Asher & Weeks, 2012; Baldwin, Bedell, & Johnson, 1997; Popadiuk & Arthur, 2014). Close friendships developed during critical developmental experiences

such as intensive degree programs can last for many years (Alemán, 2010). Business schools argue that the network students build is one of the most valuable outcomes of MBA programs, and the friendship network is likely to be one of the most lasting and potentially impactful for alumni (S. Hall, 2011; Shue, 2013; Sturges et al., 2003).

BENEFITS OF TIES TO SIMILAR AND DISSIMILAR CONTACTS

Theory and research suggests that students obtain different benefits from relationships with similar and dissimilar others, such that different network connections serve different functions. Individuals seek friendships with members of their own identity group due to the effects of similarity-attraction (Byrne, 1971) and social identification (Tajfel & Turner, 1986). Similarity-attraction effects result from the desire to validate "the accuracy and legitimacy of one's attitudes, behaviors, and feelings" (Westmaas & Silver, 2006: 1538). Individuals with similar experiences and upbringing are more likely to provide such validation due to the development of similar perspectives and values. Even when members of the same identity group hold different values, group members are likely to assume and emphasize similarities among themselves (Hornsey & Jetten, 2004: 249). Identification with a group also leads to in-group bias, or the tendency to give higher evaluations to members of one's own social group. In-group bias results from the need to believe that the groups one belongs to are desirable and valued (Bettencourt, Dorr, Charlton, & Hume, 2001). The cumulative result of perceived similarity, validation, and positive evaluation from in-group members is that friendships develop more easily within than between identity groups.

Research in the field of relational demography has shown that organizational relationships with similar others are valuable for providing social support and friendship (Avery, Tonidandel, & Phillips, 2008; Foley, Linnehan, Greenhaus, & Weer, 2006). The scholarship on job embeddedness has demonstrated the social-psychological value of having close friends in the workplace (Allen & Rhoades Shanock, 2013; Mitchell, Holtom, Lee, Sablinsky, & Erez, 2001). Friendships with classmates show similar benefits for students (Alemán, 2010; Rose-Redwood, & Rose-Redwood, 2013). Together, these findings suggest that students are likely to build at least one or a few connections with demographically similar others to reap the benefits

of close friendships. Network theory considers close friendships to be strong ties, defined as network contacts who have a close relationship, who disclose personal, confidential information, and who share resources without concern for balanced and timely reciprocity (Marsden & Campbell, 2012).

Although social support is important to students, the achievement of career goals is another important motivator driving networking in business schools and in workplaces (Uzzi & Dunlap, 2005). By sharing information strategically, individuals with a diverse set of connections become highly desirable information brokers, increasing their value as potential network contacts (Marsden & Campbell, 2012; Rodan & Galunic, 2004). One important way that MBA students build connections with each other is by providing help for dealing with stressful program requirements (Konrad, Radcliffe, & Shin, 2016). Connecting with dissimilar others to share complementary skills and perspectives helps students to achieve the goal of developing their capabilities for dealing with business problems, which tend to span functional and disciplinary boundaries (Terjesen & Politis, 2015). Research also shows that MBA students develop instrumental ties with other students to enhance their job outcomes, and that students with a more diverse set of ties to other students are better able to change careers upon graduation from the MBA program (Higgins, 2001).

In summary, MBA students make network connections for a variety of reasons, including social support, friendship, information sharing, and career advancement. Although any particular connection has the potential to provide multiple benefits, different types of contacts are likely to fulfill different needs. To fulfill the desire for social support and friendships, students are likely to create strong ties with similar others, due to similarity-attraction and identification effects (Byrne, 1971; Tajfel & Turner, 1986). To obtain information, knowledge and resources useful for school performance, and eventual school-to-work transition, students are likely to create ties with a relatively large and diverse set of contacts. Due to the value of weak ties for generating novelty and variety in resource pools, performance pressure drives students to build weak connections to a diverse set of individuals (Marsden & Campbell, 2012). To attain career opportunities, students seek connections with high-status individuals, who are able to provide access to scarce and valuable resources, including career sponsorship (Baranik, Roling, & Eby, 2010). Such resources may be hoarded among strong ties, which are more likely to

occur within identity groups (Tomaskovic-Devey, 1993). Connections are more likely to share valuable knowledge across otherwise separate networks through strong ties based upon trust (Levin, Walter, Appleyard, & Cross, 2016). As such, individuals benefit from strong connections to high-status networks, defined as those networks consisting of individuals with access to scarce and valuable resources.

Given that different types of ties are likely to fulfill different functions, students are motivated to both segregate and integrate their personal networks. To observe how individuals combine these different tendencies, it is useful to examine three dimensions of network diversity. Specifically, similarity to one's strong network ties is most likely to reflect the impact of similarity-attraction and social identification for garnering friendship and social support. Variety in one's weak network ties is most likely to provide the diversity of information needed to enhance performance in school and school-to-work transition. Connections to high-status individuals are likely to generate career opportunities, and similarity to high-status individuals creates an advantage in building these valuable network ties. All three of these aspects must be considered when examining the diversity of MBA student networks.

DIFFERENCES BETWEEN MINORITY AND MAJORITY NETWORKS

Networking experiences are likely to be substantially different for students in the numerical minority compared to their majority counterparts. Being in the numerical minority in an MBA program can mean that there are few opportunities to build strong ties with similar others. Friendship with even a small number of similar contacts results in strong ties to a relatively large proportion of one's identity group. As such, when minority and majority individuals have an equally small number of similar friends at work, minorities are far more likely to appear to be self-segregating. In skewed organizations where the proportion of similar others is quite small, it is difficult for members of the numerical minority to avoid homophily by limiting within-group contacts. Doing so would mean having an insufficient number of close friends to receive the social-psychological benefits of embeddedness (Allen & Rhoades Shanock, 2013; Mitchell et al., 2001), or having to work harder to build friendships across diversity (Rose-Redwood & Rose-Redwood, 2013). Students in the numerical majority do not face

a similar choice between friendships with similar others and avoiding self-segregation.

The tradeoff between friendships with similar others and avoiding self-segregation has important implications for the experiences of students in the minority as they build their personal networks. To benefit from the support of similar others, members of a numerical minority group are likely to seek friendships within their demographic group, and when there are small numbers, a dense network of strong ties is likely to emerge within small identity groups. Network closure (i.e., high numbers of connections within a group) is associated with speedy information sharing such that all members of a densely networked subgroup are likely to know the same pieces of information (Marsden & Campbell, 2012). A densely networked subgroup creates a forum for social control whereby network members who deviate from subgroup norms can be quickly sanctioned (Granovetter, 2005). As such, for students in the numerical minority more than for their majority counterparts, connecting to similar others combines the benefits of social support with the costs of limited information and social control.

HYPOTHESES

Conceptually, the dominant tendency of similarity-attraction means that building diverse ties (i.e., ties that cross demographic lines) is less likely (Bacharach et al., 2005). Diverse ties are likely to be slower to form and to be weaker than ties across similarities, hence both time and tie strength are

factors likely to predict the formation of connections across diversity. One factor with the potential to overcome the tendency toward similarity-attraction is status, due to the beneficial material effects of ties to high-status individuals (Belliveau, 2005). In this section, we develop hypotheses regarding three dimensions of network diversity to understand the networks of minority and majority members (see Table 1), specifically, variety, dissimilarity, and status centrality. Variety, or the extent to which one's personal network includes a relatively heterogeneous set of friendships, is expected to enhance access to a diversity of resources. Dissimilarity, or the extent to which one's personal network consists of individuals who are demographically different from oneself, is expected to result in a variety of negative social, attitudinal, and behavioral outcomes. Status centrality, or the extent to which one is connected to members of the dominant majority group, is expected to enhance access to high-value resources. The following sections develop predictions regarding the extent to which these main effects are similar or different for members of dominant majority and marginalized minority groups and for weak compared to strong network ties.

In the context of MBA programs, gender and international student status are two important dimensions of diversity, both of which have status implications. The historical predominance of men in business leadership has created gender bias in the culture of typical business schools (Kelan & Jones, 2010). In 2015, seven top-U.S. schools increased the representation of women in the MBA to over 40%;

TABLE 1
Impact of Personal Network Diversity on Minorities and Majorities

Construct	Main effects	Symmetrical or asymmetrical?
Variety	Access to a variety of informational, material, and social resources increases with greater variety	Effects differ for weak and strong ties: <ul style="list-style-type: none"> • For weak ties, effects are symmetrical across members of dominant majority and marginalized minority groups • For strong ties, effects are asymmetrical such that marginalized minority group members benefit more from strong ties across diversity
Dissimilarity	Dissimilarity is linked to negative social, attitudinal, and behavioral outcomes	Effects are asymmetrical: <ul style="list-style-type: none"> • Compared to dominant majority groups, marginalized minority groups experience more positive material effects from dissimilarity
Status centrality	Centrality in networks of high-status groups is associated with greater access to high-value resources	Effects are symmetrical: Members of both dominant majority and marginalized minority groups benefit from centrality in high-status networks

however, overall, only about 35% of MBA degrees in the US are conferred to women, a number that has not changed since 2003 (Knight, 2015, September 27).

Much of the business school curriculum features men as decision makers in business, providing few role models of women in business leadership (Ely, Ibarra, & Kolb, 2011). Business classrooms elevate the values of competitiveness and aggressiveness, which are generally viewed as more attractive and desirable in men than in women (Heilman, 2012). Furthermore, helping one's peers increases influence for male but not female MBA students, perhaps because helpfulness is expected of women but viewed as exceptional among men (Konrad et al., 2016). Women experience systematic gender discrimination in MBA programs, including trivialization of their comments and devaluation of their ideas by male peers in classroom conversations as well as in small-group projects (Kelan & Jones, 2010).

International students also face barriers in typical MBA programs (Zhang & Xia, 2015). Although 58% of applicants to full-time U.S. MBA programs are international candidates (GMAC, 2015), international students constitute only an estimated 26% of U.S. MBAs (AACSB, 2013). Despite the fact that MBA programs gain points in the rankings for having a higher proportion of international students, instruction has not changed to support international student success. Boyacigiller and Adler's (1991) classic "Parochial Dinosaur" article powerfully articulates problems with the lack of a global perspective in business schools, and almost 25 years later, MBA courses still contain relatively little international content (Zhang & Xia, 2015). The institutions affecting business vary dramatically between nations in important ways (Ghemawat, 2001, September). International students from many Asian, African, Middle Eastern, and European countries develop perspectives on business that are very different from North American frameworks for understanding concepts and cases in classroom discussions and group-project assignments. Overemphasis on domestic or North American-centric knowledge in the classroom creates pedagogical inequity such that international students' cultural knowledge, prior experiences, and frames of reference are devalued as irrelevant to course content and learning (Gay, 2000). As a result, international students from other regions experience greater difficulty in connecting their ideas to North American-centric teaching and learning. International students are also exposed to biases and stereotypes associated with cross-cultural differences (Crisp &

Turner, 2011), and business schools do little to systematically counter any cross-cultural prejudices that may exist. Language differences create further barriers, such that students for whom English is a second language are less able to contribute to learning in the classroom and group-project assignments (Urbig, Terjesen, Procher, Muehlfeld, & van Witteloostuijn, 2016).

Given the implications of gender and international student status in typical business school settings and following prior research (Konrad et al., 2016), we consider domestic men to be the high-status majority group in this research setting. Given the negative impact of multiple status-linked differences from the predominant majority (Cortina, Kabat-Farr, Leskinen, & Huerta, 2013; Woodhams, Lupton, & Cowling, 2015), we test whether international women experience the greatest disadvantages in network outcomes.

Variety in Personal Networks

Variety among the contacts in one's personal network is valuable for providing MBA students with access to a broad range of informational, material, and social resources (Higgins, 2001). Although it is more difficult for individuals to develop and maintain relationships with dissimilar others (McPherson et al., 2001; Rose-Redwood & Rose-Redwood, 2013), when students are successful in building a diverse set of reciprocated relationships (i.e., network ties that are acknowledged by both parties), the benefits of those relationships should accrue regardless of a student's status as a minority or a majority group member. Any initial differences in information sharing between weak similar and weak diverse ties should dissipate as shown in prior research where surface-level diversity effects decline over time (Harrison, Price, & Bell, 1998; Harrison, Price, Gavin, & Florey, 2002). In sum, the benefits of having a variety of weak network ties should be similar regardless of status as a minority or majority group member. For this reason, all students have similar incentives to build a variety of weak ties into their personal networks.

H1a: Members of minority and majority groups will show similar levels of variety among their weak network ties.

Among reciprocated strong ties, where both individuals have identified each other as close friends, sensitive information, social support, and material

resources should flow readily, regardless of whether the tie is across diversity or across similarity. Close friendships are defined by intimacy, mutual self-disclosure, responsiveness, and supportive listening (Radmacher & Azmitia, 2006). Strong ties are similarly characterized by frequent interaction and generalized exchange, where material support is shared without a need for commensurate or timely reciprocation (Granovetter, 2005). Although building and maintaining strong ties across diversity may be difficult, once a close friendship tie is in place, it should provide the usual benefits of friendship, particularly once the friendship has been maintained for a period of time. Over time, deep-level value similarities emerge to cement friendships across diversity (Harrison et al., 1998; Harrison et al., 2002).

Compared to the organizational majority, minority groups have stronger incentives to build a variety of strong ties into their network. By definition, members of the majority group have more opportunities to select similar others as close friends. As a result, majority group members have a greater probability of finding compatible personalities within their group. But due to small numbers, members of minority groups are less likely to find compatible personalities among similar others. Due to fewer opportunities for close friendship within the ingroup, students in the minority are more likely to seek compatible personalities among dissimilar others, such as members of the majority group. Furthermore, in cases where the majority group is also the higher status group, minority group members have more to gain from close friendships with the majority than vice versa.

In summary, members of minority groups are more likely to benefit from building close friendships across diversity, due to both limited opportunities to find compatible personalities and greater benefits from connections to a higher status group. Strong ties in particular take more time to develop across diversity due to the limiting effects of dissimilarity in the short term and the need for repeated interaction to uncover deep-level values similarities across diversity (Harrison et al., 1998; Harrison et al., 2002). As such, MBA students who are in the minority are more likely to show variety among their strong ties, particularly at later points in time.

H1b: Compared to members of the majority group, members of the minority group will show greater variety among their strong network ties, particularly in the later time period.

The concept of network variety treats personal networks similarly regardless of the status mix within a person's set of contacts. For instance, a network consisting of 20% minority- and 80% majority-group members has just as much variety as a network that is 80% minority and 20% majority. Hence, the variety dimension does not capture differences in the status makeup of personal contacts, which might result in different constellations of benefits. Such differences are better captured by measures of dissimilarity and status.

Dissimilarity in Personal Networks

Dissimilarity in one's personal network means building few connections with similar others and many connections across diversity. Individuals in the numerical minority are likely to be dissimilar to a larger proportion of their network ties than individuals in the numerical majority, simply due to the composition of the opportunity set. Being demographically dissimilar to others has been linked to many negative outcomes, such as exclusion (Maranto & Griffin, 2011); lack of voice (Troster & van Knippenberg, 2012); tardiness and absence (Avery, Volpone, McKay, & King, 2012); and poor-quality working relationships (Loi & Ngo, 2009; Tsui, Porter, & Egan, 2002).

The effects of dissimilarity are often asymmetrical such that dissimilarity is more detrimental to certain identity groups under certain conditions (Chattopadhyay, 1999). For instance, men but not women expressed a greater willingness to leave work groups predominated by the other gender (Chatman & O'Reilly, 2004). Also, female but not male doctors perceived more discrimination and harassment when working in environments predominated by the other gender (Konrad, Cannings, & Goldberg, 2010). These asymmetrical effects can often be explained by status differences between groups (Chattopadhyay, 1999). For instance, men tend to be valued in female-dominated environments, while women are devalued in male-dominated ones (Maume, 1999). Also, male-dominated workplaces tend to be higher status and more munificent than female-dominated ones (Chatman & O'Reilly, 2004). Hence, lower status individuals experience positive material outcomes, but negative social and emotional outcomes when they are dissimilar to most of their colleagues.

Under the assumption that the majority constitutes the group with the highest status in the organization, low dissimilarity is more detrimental to

members of the numerical minority. Members of both majority and minority groups with a low level of dissimilarity in their personal networks enjoy the benefits of similarity, ease of rapport, and shared experience with their network contacts. But low dissimilarity does not isolate the majority from high-status connections, while members of the minority with low network dissimilarity limit their access to high-status majority group contacts.

In sum, low dissimilarity in personal networks benefits majorities by providing them with access to both similar and high-status contacts. Low dissimilarity provides numerical minorities with the benefits of similarity while sacrificing access to contacts of higher status. As such, a cost-benefit perspective suggests that high-status majorities will show less dissimilarity in their personal networks than members of lower status minorities. Furthermore, because it is relatively difficult to build reciprocated connections across diversity (McPherson et al., 2001), this difference in the networks of majority- and minority-group members will become greater over time.

H2: Members of the majority group will show lower levels of dissimilarity in their personal networks than members of the minority group, particularly in the later time period.

Status Centrality in Personal Networks

The demographic characteristics of gender, ethnicity, and immigrant status have all been linked to societal differences in power and prestige (Brescoll, 2011; DiTomaso, Post, & Parks-Yancy, 2007; Esses, Dietz, & Bhardwaj, 2006). In North American business organizations, domestic men are most likely to have current or future network ties to individuals at the highest hierarchical levels (Ibarra, 1997; McGuire, 2000), at least partly due to similarity-attraction effects (Gray, Kurihara, Hommen, & Feldman, 2007). Therefore, in the North American context, connections with domestic men are likely to be particularly valuable for helping students to achieve career goals requiring the support of top business leaders (Belliveau, 2005). Because connections to higher status people are likely to result in better material outcomes, ties to such individuals are likely to be highly valued. Lower status groups are likely to seek friendships with higher status group members because they anticipate substantial material benefits from cultivating such ties.

Although material outcomes are likely to be maximized by connecting to members of high-status groups, due to similarity-attraction effects, people's socioemotional outcomes are likely to be more favorable in relationships with similar others. Research on communication in organizations has documented that members of high-status groups talk more than members of lower status groups (Brescoll, 2011); interrupt lower status group members more (J. A. Hall, Coats, & Smith LeBeau, 2005); are freer to use aggression toward lower status group members (Sloan, 2004); and behave in a less trustworthy manner toward individuals of lower status (Glaeser, Laibson, Scheinkman, & Soutter, 2000). Hence, for members of lower status groups, interacting with higher status individuals is less pleasant than interacting with similar others. Indeed, marginalized minorities benefit from avoiding the majority because in doing so, they minimize the extent to which they experience interpersonal discrimination (Carter & Feld, 2004; Edwards & Romero, 2008).

Conversely, members of lower status groups express deference to members of higher status groups (Lively, 2000); strive to present themselves positively and ingratiate themselves to higher status individuals (Barsness, Diekmann, & Seidel, 2005); behave in a trustworthy manner (Glaeser et al., 2000); craft their language more carefully (Sonenshein, 2006); and are more polite to higher status people (Morand, 2000). Hence, members of lower status groups engage in impression management when interacting with higher status individuals rather than engaging in the sincere self-disclosure that is the foundation for strong friendships (Radmacher & Azmitia, 2006).

In sum, members of higher status groups are unlikely to seek friendships with lower status individuals because they see few benefits of cultivating these relationships relative to the benefits of cultivating ties with similar others. Although members of lower status groups are likely to have relatively unpleasant and insincere interactions with higher status others, they are likely to seek such connections, due to the potential for beneficial material outcomes. Hence, the personal networks of lower status groups are less likely than those of higher status groups to show a bias in favor of similar others, particularly among weak rather than strong friendship ties.

H3: Members of the high-status majority group will be more central in the high-status network than members of the low-status minority, particularly among strong ties.

METHOD

From 2008 to 2009, we collected network data from MBA students during the 1st month after they entered their program (T1) and again 4 months later (T2). Three cohorts of MBA students at two top-tier Canadian MBA programs ($n = 68, 70$, and 115 , respectively) participated in the study. About a third of students in both programs were women, a bit lower than the Canadian population of GMAT test takers, which is 38% female (GMAC, 2014). Approximately 30% of students in one program and 60% of students in the other program were international in origin.

Because both programs are highly selective, students are very similar to each other in career motivation, ability, and potential. Total N s in the prediction equations are slightly smaller due to missing data. Response rates to the network surveys exceeded 80% in all cases. We collected data on demographic characteristics and proactive personality at T1. The respective program offices provided standardized test scores with the respondents' written permission.

We ran a set of post hoc logistical regressions to analyze nonresponse. There were no significant differences in response by gender, age, GMAT, and ethnicity. International students responded at a slightly higher rate, but after controlling for other demographic differences, the response rate differential was no longer significant. There was a slight difference in response rate for the cohorts, with Cohort 2 being less likely to respond compared to Cohort 1. But since the nonrespondents appear randomly distributed, this does not impact the findings.

Demographic Characteristics

We examined the three dimensions of personal network diversity for four categories of MBA students: domestic men, domestic women, international men, and international women. Participants indicated gender as male or female on the T1 survey form. Participants were also asked an open-ended question about their nationality, which was followed by the question, "If you are not a Canadian citizen, what is your status in Canada?" Citizens of Canada were considered domestic students, and participants indicating their status as "permanent resident" or "on student visa" were considered international. Of the 253 participants in the study, 110 (44.5%) were domestic men, 34 (13.8%) were domestic women, 71 (28.7%) were international men, and 32 (13.0%) were international women (6 provided no demographic data).

The three cohorts of MBA students differed substantially in their demographic distributions, particularly in the representation of domestic men and international men. In Cohort 1, 31% of respondents were domestic men, compared to 58% of respondents in Cohort 2 and 54% of respondents in Cohort 3. International men constituted 39% of respondents in Cohort 1, compared to only 19% in Cohort 2 and 21% in Cohort 3. The proportions of women were more consistent across cohorts, such that 17% of Cohort 1, 10% of Cohort 2, and 13% of Cohort 3 were domestic women, and 13% of all three cohorts were international women.

Network Data

We used the roster method, which is considered superior to a name generator requiring participants to recall names from memory, to collect network data at both T1 and T2. Respondents were provided with an alphabetical listing of all the names of members of their cohort group: that is, those who entered their program at the same point in time. Participants indicated their degree of friendship with every other member of the cohort on a scale ranging from 1 = *try to avoid* to 7 = *close friend*, with 4 = *neutral* as a midpoint. A checkbox was also provided for participants to indicate those people whom they did not know at all. We coded a symmetric strong friendship tie if both individuals provided a rating of 6 or 7 to each other. We coded all other friendship ties, where both individuals responded at a minimum of 5 for each other as weak. We summarize the definitions and measures of the three network dimensions in Table 2. Table 3 shows means, standard deviations, and correlations among the measures of variety, dissimilarity, and status centrality of personal networks at T1 and T2.

Variety in Personal Networks

To assess the level of variety in personal networks, we calculated the bias-corrected Blau index (Biemann & Kearney, 2010: 595; Harrison & Klein, 2007) for each individual's set of strong and weak ties, respectively:¹

$$\text{Blau}_N = 1 - \sum_{i=1}^k \frac{N_i(N_i - 1)}{N(N - 1)}$$

¹ N s are reduced for the analyses predicting the corrected Blau index due to inability to divide by zero for individuals with no or only one strong tie.

TABLE 2
Measuring Dimensions of Personal Network Diversity

Construct	Definition	Measure	Formula
Variety	Extent to which focal individuals are connected to members of a diverse set of social identity groups	Corrected Blau index of variety among the focal individual's set of contacts (Biemann & Kearney, 2010)	$Blau_N = 1 - \sum_{i=1}^k \frac{N_i(N_i - 1)}{N(N - 1)}$ where N_i is the absolute frequency of network ties to ego in the i th category and N is the total number of network ties to ego, and k is the number of categories
Dissimilarity	Extent to which focal individuals are socially dissimilar to their set of network contacts	Euclidean distance between focal individuals and their set of contacts (Harrison & Sin, 2006)	$\sqrt{\sum (X - X_j)^2 / N}$ where X is the focal person's score, N is the number of contacts to the focal person, and X_j is the score of each of the focal person's contacts
Status centrality	Extent to which focal individuals are central in networks of high-status identity groups	Centrality of focal individuals in high-status networks within the collectivity	$C_i = \sum_{j=1}^N \frac{t_{ij}}{N}$ where C is centrality in the network of a particular subgroup, i is the focal actor, j is the alter, N is the number of alters in the subgroup, and t indicates whether a friendship tie exists

In the bias-corrected formula, N_i is the absolute frequency of network ties to ego in the i th category, N is the total number of network ties to ego, and k is the number of categories (in our case, $k = 4$). A score of 0 indicates maximum homogeneity, while a score of 1 indicates maximum heterogeneity.

Dissimilarity in Personal Networks

To assess dissimilarity, we calculated the Euclidean distance of the focal person from all of their strong and weak network ties (see, Harrison & Sin, 2006, pp. 202, 207). The Euclidean distance was calculated

using the two categorical measures of gender and domestic/international status using the following formula:

$$\sqrt{\frac{\sum (x_i - x_j)^2}{N}}$$

where x_i indicates the focal individual's characteristic (gender and citizenship) and x_j indicates the contact's characteristic. When gender and citizenship are the same, the resulting difference is 0, and when gender and/or citizenship differ, the resulting difference is 1.

TABLE 3
Means, Standard Deviations, Ranges, and Correlations for Network Diversity Measures

		<i>M</i>	<i>SD</i>	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12
1	T1 weak tie status centrality	0.28	0.14	0.00	0.61												
2	T1 strong tie status centrality	0.13	0.12	0.00	0.64	0.39											
3	T1 weak tie variety	0.64	0.12	0.00	1.00	-0.34	-0.01										
4	T1 strong tie variety	0.65	0.22	0.00	1.00	0.10	-0.01	0.07									
5	T1 weak tie dissimilarity	0.78	0.15	0.00	1.00	-0.10	-0.04	0.40	0.14								
6	T1 strong tie dissimilarity	0.73	0.23	0.00	1.00	0.15	0.09	0.08	0.63	0.24							
7	T2 weak tie status centrality	0.30	0.14	0.00	0.74	0.41	0.29	-0.10	0.00	-0.01	0.07						
8	T2 strong tie status centrality	0.18	0.15	0.00	0.61	0.36	0.66	-0.02	0.04	-0.11	0.04	0.15					
9	T2 weak tie variety	0.67	0.09	0.27	0.82	-0.21	-0.01	0.31	0.10	0.12	0.14	-0.37	0.19				
10	T2 strong tie variety	0.63	0.16	0.00	1.00	-0.03	-0.12	0.21	0.34	0.36	0.36	0.07	-0.18	0.04			
11	T2 weak tie dissimilarity	0.80	0.13	0.32	1.00	-0.20	-0.04	0.12	0.17	0.61	0.22	-0.05	-0.01	0.39	0.17		
12	T2 strong tie dissimilarity	0.72	0.20	0.00	1.00	0.00	-0.03	0.17	0.39	0.51	0.47	0.05	-0.01	0.17	0.42	0.49	

Status Centrality in Personal Networks

Our measure of network status centrality consisted of the individual's connections to domestic men in their cohort. We calculated a total of four status centrality scores for each respondent: that is, strong and weak ties to domestic men at T1 and T2. The formula used for calculating degree centrality was:

$$C_i = \sum_{j=1}^N \frac{t_{ij}}{N}$$

where C is status centrality, i is the focal actor, j is the contact, N is the number of domestic men in the cohort, and t indicates whether a friendship tie exists. For the longitudinal analysis, T1 strong (weak) tie status centrality was statistically controlled when predicting T2 strong (weak) tie status centrality. A score of 0 indicates minimum centrality (no domestic male friends), while a score of 1 indicates maximum centrality (friends with 100% of the domestic men in the cohort).

Controls

We controlled for school and cohort group in the analysis to rule out any cohort or institutional effects as plausible alternative explanations for our findings. To further rule out individual differences in ability or motivation, we introduced two control variables into the analysis. GMAT scores assess quantitative, verbal, and writing capabilities and are used as a selection tool by many top-tier MBA programs. GMAT scores were taken from program office records of the official scores provided by the Graduate Management Admissions Council (GMAC).

We used Seibert, Crant, and Kraimer's (1999) short-form measure of *proactive personality* to control for individual differences in the propensity to take initiative and make positive changes in oneself and in one's life circumstances. The internal consistency of this measure was high ($\alpha = .89$). Prior research has linked proactive personality to positive career outcomes (Seibert et al., 1999).

We also controlled for several demographic characteristics. Because of the intensity of these programs, family responsibilities can interfere with the students' ability of to fully participate in student social functions. To rule out this factor as a possible explanation for network development, we used participants' survey responses to identify single people without children, married (or common law partner) without children, single people

with children, and married people with children and controlled for these family status indicators in the prediction equations. We also controlled for age to account for the possibility that some age groups are more apt to engage in informal socializing with fellow students. Last, we controlled for ethnic group with three dummy variables to indicate East Asian (mostly Chinese), South Asian (mostly Indian, Pakistani), and other ethnicity (including African or Black), with the comparison group being European origin or White. Of the 253 study participants, 97 (39%) were European origin or White, 51 (21%) were East Asian, 57 (23%) were South Asian, and 29 (12%) indicated another ethnic category (19 participants did not provide their ethnicity).

RESULTS

Control Variables

The control variables indicated several patterns of findings worthy of note. Ethnicity had no relationship to network variety when other factors were controlled (Tables 5 and 6). Between T1 and T2, White students added less dissimilarity to their network ties than East Asian, South Asian, or students of other ethnicities did (Table 8). At T1, East Asian students showed lower status centrality than White students among weak ties, while South Asian students showed lower status centrality than White students among strong ties (Table 9). Ethnicity was unrelated to change in status centrality between T1 and T2 (Table 9). These findings suggest that White students were less likely to build dissimilarity into their networks and more likely to build connections to the dominant majority.

Age was positively related to added variety among strong ties between T1 and T2 (Table 6) and to dissimilarity to weak ties at T1 (Table 7). These findings suggest that older students were more likely to build diversity into their MBA networks.

Being married and/or having children was unrelated to network variety at T1 (Table 5), but single parents added less variety to their networks between T1 and T2 than did single students without children (Table 6). At T1, married students without children showed less dissimilarity to their weak network ties, and married students with children showed less dissimilarity to their strong network ties (Table 7). Married students with or without children added less dissimilarity to their strong network ties between T1 and T2 (Table 8). Being

married and/or having children was unrelated to status centrality for weak and strong ties at either time point (Table 9). These findings imply that family responsibilities limited the extent to which students built diversity into their MBA networks.

Group Mean Differences

To provide descriptive information comparing the network diversity of domestic men, domestic women, international men and international women, Table 4 shows means, standard deviations, and results of one-way ANOVAs with Scheffé simple effects tests. There were no significant differences between domestic men, domestic women, international men, or international women in variety among weak ties at either T1 or T2. Both domestic women and international women showed greater variety among their strong ties than domestic men at T2. At both time points, dissimilarity to weak ties was lower for domestic men than for all other groups, and dissimilarity to strong ties was lower for domestic men than for domestic women and international women. All groups show a substantial amount of dissimilarity to their personal networks, and the group differences in dissimilarity are also substantial, with international women showing very high levels of dissimilarity to their network members, even among their strong ties. Status centrality among weak ties was higher for domestic men compared to international men and international

women at T1, but showed no differences between groups at T2. Status centrality among strong ties was higher for domestic men compared to international men and international women at both T1 and T2. Status centrality among strong ties was higher for domestic women compared to international men at T1, but not at T2. The size of the group differences in status centrality are substantial, with domestic men having almost double the strong tie status centrality of international students.

Results for Variety

H1a predicted that members of minority and majority groups would show similar levels of variety among the weak ties in their personal networks. We tested this hypothesis by comparing the largest (domestic men) and smallest (international women) groups to all others in their levels of network variety. Tables 5 and 6 show regressions predicting the corrected Blau index (Biemann & Kearney, 2010) assessing network variety at T1 and T2, respectively. In both Tables, the far-left column compares the amount of variety in domestic men's weak ties to that for all other groups (domestic women, international men, and international women). The second column from the left compares the amount of variety in international women's weak ties to that for all other groups (domestic men, domestic women, and international men). The third column makes the

TABLE 4
Network Diversity of Domestic and International Men and Women

	Domestic				International				<i>F</i> value
	Men (a)		Women (b)		Men (c)		Women (d)		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
T1 weak tie status centrality	.335***c,d	.117	.278	.126	.228***a	.145	.217***a	.148	11.76***
T1 strong tie status centrality	.176***c, **d	.117	.160*c	.132	.084***a,*b	.095	.092**a	.077	12.11***
T1 weak tie variety	.632	.095	.643	.139	.660	.137	.683	.102	1.81
T1 strong tie variety	.634	.224	.694	.139	.600	.231	.706	.171	2.39+
T1 weak tie dissimilarity	.686***b,c,d	.101	.930***a,c	.040	.789***a,b,d	.167	.915***a,c	.057	51.94***
T1 strong tie dissimilarity	.699*b,d	.218	.842*a,c	.187	.683*b,**d	.257	.852*a, **c	.121	7.39***
T2 weak tie status centrality	.322	.119	.347	.135	.290	.140	.276	.174	2.16+
T2 strong tie status centrality	.240***c,d	.150	.201	.115	.128***a	.128	.115***a	.112	12.15***
T2 weak tie variety	.649	.102	.663	.101	.671	.079	.673	.085	0.95
T2 strong tie variety	.581**b,d	.179	.701**a	.087	.618	.189	.703**a	.113	6.92***
T2 weak tie dissimilarity	.706***b,c,d	.112	.934***a,c	.047	.832***a,b,d	.089	.933***a,c	.052	80.37***
T2 strong tie dissimilarity	.634***b,d,**c	.166	.878***a,*c	.077	.745**a,*b	.230	.841***a	.180	20.80***

Note. Superscript "a", "b", "c", and "d" indicate the mean value is significantly different from domestic men, domestic women, international men, and international women, respectively.

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; + $p < 0.1$

TABLE 5
Regressions Predicting Variety in Individual Networks at T1

	DM weak tie	IF weak tie	DM strong tie	IF strong tie
Domestic Male (DM)	0.001 (0.017)		0.008 (0.034)	
International Female (IF)		0.03 (0.023)		0.066 (0.047)
E. Asian	0.035 (0.022)	0.028 (0.021)	0.101* (0.045)	0.086+ (0.044)
S. Asian	0 (0.021)	-0.003 (0.020)	0.023 (0.042)	0.015 (0.041)
Other Ethnicity	-0.007 (0.026)	-0.011 (0.026)	-0.015 (0.052)	-0.024 (0.051)
Ref: White				
Married no children	-0.04 (0.028)	-0.043 (0.028)	0.036 (0.059)	0.033 (0.058)
Single w/children	0.012 (0.027)	0.011 (0.026)	-0.034 (0.055)	-0.039 (0.054)
Married w/children	0.017 (0.029)	0.017 (0.028)	-0.03 (0.060)	-0.031 (0.060)
Ref: Single no children				
Cohort 2	-0.084*** (0.022)	-0.083*** (0.022)	0.02 (0.046)	0.026 (0.045)
Cohort 3	-0.119*** (0.020)	-0.119*** (0.020)	-0.069+ (0.040)	-0.067+ (0.040)
Ref: Cohort 1				
Age	0 (0.002)	0 (0.002)	0.004 (0.005)	0.005 (0.005)
Standardized Test Score	0+ (0.000)	0+ (0.000)	0 (0.000)	0 (0.000)
Proactivity	-0.01 (0.010)	-0.01 (0.010)	0.033 (0.020)	0.034+ (0.020)
Constant	0.602*** (0.122)	0.596*** (0.122)	0.46+ (0.265)	0.458+ (0.264)
Adjusted R ²	0.167	0.174	0.011	0.021
N	211	211	196	196
F	4.498***	4.674***	1.174	1.345

Notes. DV = Corrected Blau index of variety of each individual's set of network contacts.

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

comparison for domestic men's strong ties, and the fourth column makes the comparison for international women's strong ties.

Findings fully supported H1a's prediction of no difference between high- and low-status groups in variety among weak network ties. At both T1 and T2, neither domestic men nor international women showed any significant difference from other groups in their level of network variety among their weak ties.

H1b predicted that compared to members of majority groups, members of minority groups would show greater variety among their strong network ties, particularly in the later time period. Supporting this prediction, at T2, domestic men showed significantly less variety among their strong ties than the other three groups. International women showed a nonsignificant tendency toward having more

variety in their strong ties than the other three groups. These findings partially supported H1b.

Results for Dissimilarity

H2 predicted that members of dominant majority groups would show lower levels of dissimilarity in their personal networks than would members of marginalized minority groups, particularly in the later time period. Tables 7 and 8 show regressions predicting dissimilarity in individual networks based on gender and citizenship status at T1 and T2, respectively. Measured as the Euclidean distance between individuals and their set of network contacts, a higher score indicates greater dissimilarity.

Hypothesis tests in Tables 7 and 8 indicated that domestic men showed significantly less dissimilarity to their weak ties than other demographic

TABLE 6
Regressions Predicting Variety in Individual Networks at T2

	DM weak tie	IF weak tie	DM strong tie	IF strong tie
Domestic Male (DM)	0.004 (0.013)		-0.065* (0.026)	
International Female (IF)		0.009 (0.017)		0.067+ (0.035)
E. Asian	0.024 (0.016)	0.021 (0.017)	0.032 (0.034)	0.038 (0.034)
S. Asian	0.003 (0.016)	0.001 (0.015)	-0.026 (0.031)	-0.009 (0.030)
Other Ethnicity	0.003 (0.021)	0.001 (0.021)	-0.019 (0.041)	-0.013 (0.041)
Ref: White				
Married no children	-0.013 (0.022)	-0.014 (0.022)	-0.056 (0.046)	-0.054 (0.047)
Single w/children	-0.037+ (0.020)	-0.038+ (0.020)	0.004 (0.041)	0.009 (0.041)
Married w/children	-0.023 (0.022)	-0.024 (0.022)	-0.06 (0.045)	-0.053 (0.046)
Ref: Single no children				
Cohort 2	-0.086*** (0.018)	-0.085*** (0.017)	-0.021 (0.034)	-0.034 (0.033)
Cohort 3	-0.109*** (0.017)	-0.109*** (0.017)	-0.01 (0.030)	-0.021 (0.030)
Ref: Cohort 1				
Age	0 (0.002)	0 (0.002)	0.007+ (0.004)	0.009* (0.004)
Standardized Test Score	0 (0.000)	0 (0.000)	0 (0.000)	0 (0.000)
Proactivity	0.002 (0.008)	0.002 (0.008)	0.017 (0.015)	0.014 (0.015)
T1 Weak Tie Variety	0.031 (0.062)	0.028 (0.062)		
T1 Strong Tie Variety			0.24*** (0.056)	0.235*** (0.056)
Constant	0.614*** (0.101)	0.613*** (0.101)	0.111 (0.205)	0.12 (0.206)
Adjusted R ²	0.281	0.282	0.13	0.116
N	193	193	178	178
F	6.783***	6.802***	3.037***	2.791**

Notes. DV = Corrected Blau index of variety of each individual's set of network contacts.

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

groups at both T1 and T2, and among their strong ties at T2 ($p < .001$). Domestic men also showed a nonsignificant tendency indicating less dissimilarity to their strong ties at T1. International women showed significantly more dissimilarity to their weak ties than other demographic groups at both T1 ($p < .001$) and T2 ($p < .01$) and among their strong ties at T1 ($p < .01$). These findings provide substantial but not full support for H2.

Results for Status Centrality

H3 predicted that members of the high-status majority would be more central in the high-status network than members of the low-status

minority, particularly among strong ties. Table 9 shows the predictors of centrality among weak and strong ties in domestic men's networks at T1 and T2. Partially supporting H3, international men and women were less central at T1 such that they had fewer weak ties to domestic men than did other domestic men. At T2, there were no significant demographic effects on gains in centrality among weak ties to domestic men (i.e., once T1 ties of this type were controlled). Supporting H3, hypothesis testing indicated that at T1, international men and women had fewer strong ties to domestic men than did domestic men, and in addition, between T1 and T2, domestic women, international men, and international women had all added

TABLE 7
Regressions Predicting Dissimilarity in Individual Networks at T1

	DM weak ties	IF weak ties	DM strong ties	IF strong ties
Domestic Male (DM)	-0.169*** (0.020)		-0.065+ (0.034)	
International Female (IF)		0.162*** (0.030)		0.145** (0.048)
E. Asian	-0.016 (0.025)	0.002* (0.027)	0.092* (0.045)	0.081+ (0.044)
S. Asian	-0.023 (0.024)	0.018 (0.026)	-0.047 (0.043)	-0.04 (0.041)
Other Ethnicity	-0.049 (0.030)	-0.014 (0.033)	-0.04 (0.054)	-0.037 (0.052)
Ref: White				
Married no children	-0.061+ (0.033)	-0.082* (0.036)	-0.011 (0.060)	-0.022 (0.060)
Single w/children	0.011 (0.031)	0.031 (0.034)	-0.036 (0.055)	-0.029 (0.054)
Married w/children	-0.053 (0.033)	-0.039 (0.037)	-0.112+ (0.059)	-0.102+ (0.058)
Ref: Single no children				
Cohort 2	0.012 (0.026)	-0.033 (0.028)	0.031 (0.046)	0.018 (0.045)
Cohort 3	-0.012 (0.023)	-0.046+ (0.025)	-0.036 (0.041)	-0.048 (0.040)
Ref: Cohort 1				
Age	0.005* (0.002)	0.006* (0.003)	0.006 (0.004)	0.007 (0.004)
Standardized Test Score	0 (0.000)	0+ (0.000)	0 (0.000)	0 (0.000)
Proactivity	-0.003 (0.012)	-0.012 (0.013)	0.052* (0.020)	0.049* (0.020)
Constant	0.85*** (.143)	.871*** (.156)	0.139 (0.256)	0.159 (0.252)
Adjusted R ²	.28	.14	0.047	0.074
N	213	213	206	206
F	8.02***	3.96***	1.85*	2.36**

Note. DV = Euclidean distance between the individual and his/her set of network contacts, such that a high score indicates a higher level of dissimilarity.

Ns differ slightly because a few individuals had no reciprocated ties.

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

fewer strong ties to domestic men than did domestic men.

DISCUSSION

Integrating the three constructs of variety, dissimilarity, and status centrality into network theorizing suggests three alternative ways that organizational members potentially demonstrate diversity in their friendship networks. Theory suggests that each of these constructs has a distinct set of antecedents and outcomes such that all three dimensions must be examined to understand network development. Furthermore, theory must consider the utilitarian impact of network diversity on individual outcomes to predict whether dominant majorities or marginalized minorities are more likely to diversify their

networks. A utilitarian perspective predicts that minorities diversify their networks more than majorities do and this is substantially supported in our longitudinal network study.

All three measures of personal network diversity indicated that the least powerful group in the numerical minority diversified their networks more than the most powerful group in the numerical majority. Numerically, all students in the same cohort had an equal opportunity to build variety into their networks. But despite this fact, domestic men added less variety to their strong ties than other students did between T1 and T2. As such, this finding indicates particularly strong similarity-attraction effects among the high-status group.

As the largest group, domestic men had less opportunity to build dissimilarity into their networks,

TABLE 8
Regressions Predicting Dissimilarity in Individual Networks at T2

	DM weak ties	IF weak ties	DM strong ties	IF strong ties
Domestic Male (DM)	-0.102*** (0.019)		-0.136*** (0.027)	
International Female (IF)		0.064** (0.023)		0.064 (0.040)
E. Asian	0.01 (0.019)	0.019 (0.020)	0.041 (0.035)	0.065+ (0.037)
S. Asian	-0.005 (0.019)	0.02 (0.019)	0.029 (0.033)	0.071* (0.034)
Other Ethnicity	-0.023 (0.025)	-0.01 (0.026)	0.061 (0.044)	0.091+ (0.047)
Ref: White				
Married no children	0.024 (0.027)	0.036 (0.028)	-0.106* (0.048)	-0.099+ (0.051)
Single w/children	-0.018 (0.024)	-0.011 (0.025)	-0.038 (0.042)	-0.022 (0.045)
Married w/children	-0.01 (0.027)	0.009 (0.028)	-0.104* (0.047)	-0.085+ (0.049)
Ref: Single no children				
Cohort 2	-0.023 (0.020)	-0.043* (0.021)	0.014 (0.035)	-0.017 (0.037)
Cohort 3	-0.016 (0.018)	-0.027 (0.019)	0.009 (0.032)	-0.012 (0.034)
Ref: Cohort 1				
Age	-0.001 (0.002)	-0.001 (0.002)	0.005 (0.004)	0.005 (0.004)
Standardized Test Score	0 (0.000)	0 (0.000)	0 (0.000)	0 (0.000)
Proactivity	0.004 (0.009)	0 (0.010)	0.016 (0.016)	0.007 (0.017)
T1 Weak Tie Dissimilarity	0.348*** (0.062)	0.484*** (0.058)		
T1 Strong Tie Dissimilarity			0.363*** (0.056)	0.38*** (0.060)
Constant	0.588*** (0.124)	0.50*** (0.129)	0.398+ (0.202)	0.468* (0.214)
Adjusted R ²	.47	.41	0.33	0.25
N	195	195	189	189
F	14.28***	11.27***	8.15***	5.76***

Note. DV = Euclidean distance between the individual and his/her set of network contacts. *N*s differ slightly because a few individuals had no reciprocated ties.

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

and they showed less dissimilarity with both their weak and strong ties at T1 and added less dissimilarity than did other students between T1 and T2. As the smallest group, international women had more opportunity to build dissimilarity into their networks, and they showed more dissimilarity with both their weak and strong ties at T1 and added more dissimilarity to their weak ties than did other students between T1 and T2. Hence, in a diverse setting, larger and smaller demographic groups have substantially different network-building experiences, with individuals in the largest group having the fewest opportunities to connect with dissimilar others, while the smallest group faces the

challenge of creating relationships across diversity to extend their networks.

Numerically, relative group size does not affect the opportunity to develop status centrality. As such, the finding that both international men and women had fewer weak and strong ties to domestic men indicates social barriers between these groups. These barriers were particularly pronounced among strong ties, with international women and men showing relatively few strong ties to domestic men at T1 and relatively few added strong ties to domestic men between T1 and T2. These results indicate that domestic male MBA networks were less open to diversity than would be expected given the

TABLE 9
Regressions Predicting Status Centrality in Individual Networks

	T1 weak ties	T2 weak ties	T1 strong ties	T2 strong ties
Domestic Female	-0.037 (0.026)	0.038 (0.030)	-0.023 (0.023)	-0.073** (0.023)
International Male	-0.052* (0.022)	0.005 (0.026)	-0.059** (0.020)	-0.087*** (0.021)
International Female	-0.098*** (0.027)	-0.018 (0.031)	-0.061* (0.025)	-0.109*** (0.024)
Ref: Domestic Male				
E. Asian	-0.05* (0.024)	0 (0.027)	-0.031 (0.021)	-0.012 (0.021)
S. Asian	-0.025 (0.023)	-0.01 (0.027)	-0.046* (0.021)	0.01 (0.021)
Other Ethnicity	-0.019 (0.029)	0.015 (0.034)	-0.024 (0.026)	0.044 (0.027)
Ref: White				
Married no children	0.001 (0.030)	0.046 (0.036)	0.001 (0.027)	0.013 (0.028)
Single w/children	0.019 (0.029)	0.014 (0.033)	0.012 (0.026)	0.016 (0.025)
Married w/children	-0.023 (0.031)	-0.015 (0.036)	-0.038 (0.028)	-0.037 (0.028)
Ref: Single no children				
Cohort 2	0.073** (0.024)	0.038 (0.028)	-0.002 (0.022)	-0.083*** (0.021)
Cohort 3	0.074*** (0.021)	-0.002 (0.025)	0.017 (0.019)	-0.06** (0.019)
Ref: Cohort 1				
Age	-0.003 (0.002)	0.003 (0.003)	-0.002 (0.002)	0.001 (0.002)
Standardized Test Score	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0+ (0.000)
Proactivity	0.042*** (0.011)	0.005 (0.013)	0.035*** (0.010)	0.015 (0.010)
T1 Status Centrality	N.A.	0.387*** (0.083)	N.A.	0.727*** (0.073)
Constant	0.169 (0.133)	0.017 (0.156)	0.175 (0.119)	0.221+ (0.122)
Adjusted R ²	0.293	0.148	0.198	0.548
N	213	195	213	195
F	7.28***	3.25***	4.73***	16.67***

Note. "T1 Status Centrality" indicates a statistical control for status centrality score of the same type (weak or strong) at T1. Because T1 status centrality is controlled, regression coefficients for T2 predict differences between groups in change to status centrality over time.

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

benefits of developing a friendship network with the potential to span the globe.

Implications for Theory

Although the theorizing in this article suggests that the patterns of networking across diversity arise from individuals seeking to maximize their networking outcomes, the resulting network pattern is not necessarily the most beneficial in the long run. During the MBA program, students are likely to seek connections that fulfill the short-term goal of getting a desirable job. While they are in their MBA program, students therefore focus on connecting

with the high-status domestic male group. Domestic students are most likely to be personally connected to the domestic job market, either through prior work experience or family members. Domestic men are more valued than domestic women because they fit cultural expectations for leadership, while a woman, "must establish credibility in a culture that is deeply conflicted about her authority" (Ely et al., 2011: 477). As such, we have argued and found that domestic men in MBA programs seek connections with each other rather than connections across lines of diversity.

A relative lack of connections across diversity may be detrimental in the longer term, however. As

professionals seeking to add value to their firms in a global economy, MBA alumni may come to value their international connections quite highly. Few businesses are completely domestic, and many vibrant business opportunities are international in nature. For this reason, MBA friendships across domestic–international lines of diversity have the potential to enhance business success. For example, obtaining a degree from the same school is a primary source of highly trusting *guanxi* relationships in China (Mao, Peng, & Wong, 2012). In its current form, networking theory does not take into consideration the ways that individuals balance short- and long-term goals when building network connections. Because connections across diversity are relatively difficult to create, individuals are unlikely to be motivated to make such connections unless they are clearly associated with immediate gains, as is the case for individuals in the low-status numerical minority. Those individuals who make the effort to build international connections may find that in the long run, their relatively unique and difficult to replicate personal networks provide them with a valuable competitive advantage.

An important question for the value of diverse personal networks is the quality of resources exchanged. Our findings show that dominant majorities create weak connections across diversity without necessarily including those contacts in their strong-tie networks. Although research supports the value of weak ties for information sharing (Brown & Konrad, 2001; Granovetter, 2005), the value of strong ties for resource sharing has been documented in recent studies (Levin et al., 2016). Little is known about the extent to which valuable resources are shared across diverse ties (Konrad et al., 2016). Given the large body of work indicating status effects on interpersonal interaction (Brescoll, 2011; Morand, 2000), it is likely that marginalized minorities share resources more freely with their weak-tie majority connections than the reverse. Members of marginalized minority groups may share resources with majority individuals to build valuable connections to the high-status network. The possibility that the exchange of resources is asymmetric such that marginalized groups must build strong ties across diversity to gain the level of benefits that dominant groups accrue from weak ties is an important question for future theory and research.

Another important conceptual question raised by our findings is whether the majority's behavior is deliberate or the result of unintentional unconscious processes. Survey data showing a decline

in explicitly racist and sexist sentiments over time (Twenge & Campbell, 2008) suggest that the importance of unconscious biases has increased relative to that of deliberate discriminatory behaviors (Ziegert & Hanges, 2005). The aversive racism (Dovidio & Gaertner, 2004) and ambivalent sexism (Glick & Fiske, 1996) models both emphasize the unconscious nature of contemporary intergroup discrimination. Hence, majority members who sincerely believe in intergroup equality may still act in discriminatory ways due to the impact of affective reactions and biased cognitions associated with outgroups.

In contrast, the actions of members of the numerical minority in creating the most diverse personal networks are likely to be deliberate rather than unconscious for a few reasons. First, a long history of research shows that social similarity is a natural attractor, and that friendship ties are more likely within than across social identity groups (McPherson et al., 2001). In an environment where one is in the numerical minority, social interaction is more effortful due to a relative lack of obvious and natural connections based upon social similarity. Also, theories of network development emphasize individual agency in the efforts of people to acquire contacts to increase their access to valued resources (Burt, 2005; Uzzi & Dunlap, 2005). Conceptually, then, the reason that members of the low-status numerical minority seek ties across diversity is to enhance their personal outcomes, which suggests intentional behavior.

LIMITATIONS

One limitation of the study is that we combined all international students into a single group rather than identifying students from the same home country to create our measures of network diversity. We chose this method for two reasons. First, we had qualitative evidence that international status influences students' experiences in the MBA programs in a categorical way. Second, the number of international women (32) was too small to subdivide further for a meaningful within-country analysis. This methodology introduces a conservative bias against finding support for our hypotheses. Specifically, with our method, international students from different countries who connected with each other were not credited with creating a diverse tie. International students were only indicated as creating a diverse tie across nationality if they connected with a member of the domestic majority. Hence, had

sufficient numbers been available to create within-country subgroups among the international networks, the findings for variety and dissimilarity might have been more strongly supportive of our hypotheses.

The cultural differences among the international group likely influenced the development of the international student networks. The domestic students shared a home culture, while the international students represented many national cultures and shared only the status of being an outsider from the domestic culture. The shared "international" status may not provide a lasting basis for a similarity effect, due to the lack of a shared first language, shared values and beliefs, and shared cultural experiences. Analyses of other datasets where the numerical minority consists of a single cultural group would be valuable for overcoming this limitation.

We did not measure important dimensions of personality, such as neuroticism, which has been shown to influence the development of social networks in teams (Klein, Lim, Saltz, & Mayer, 2004). Although this psychological dimension was significant for team networks (size: 9 to 12 members), whether this variable would have similar effects in networks with much larger boundaries remains an empirical question. Due to survey length limitations as well as the fact that the items on the neuroticism scale are potentially sensitive, we decided not to add the Big Five personality inventory to our data collection for fear that we would lose response rate. In presurvey discussions with a previous cohort of students, respondents were adamant about keeping the survey short, so we were also not able to ask questions about resources or knowledge bases that constitute critical mechanisms thought to drive networking benefits (Rodan & Galunic, 2004; Seibert, Kraimer, & Liden, 2001). Network surveys asking participants to respond to questions about each person in a population are burdensome for respondents, and all such studies must balance concerns about measurement and response rate.

IMPLICATIONS FOR MBA PROGRAMS

The networks that students build during the MBA program constitute an important foundation for their future careers. The MBA program provides a finite opportunity to establish a set of lasting relationships among a select international set of professionals with the potential to affect both career opportunities and job performance (S. Hall, 2011;

Higgins, 2001; Shue, 2013; Sturges et al., 2003). Our findings that domestic men build strong friendships with each other more than they do with domestic women or international students indicate that they may be missing the opportunity to build the kind of diverse network that could create a competitive advantage in the global economy. Building strong friendships with international students of both genders would provide domestic men with practice in developing the skills needed for successful cross-cultural interaction (Matveev & Nelson, 2004). Spanning cultural boundaries by building friendships with international students is likely to enhance the cultural intelligence of domestic students crucial for succeeding in the contemporary global business environment (Engelhard & Holtbruegge, 2016). Creating friendships across diversity in the MBA program would help all students build the habit of diversifying their networks, with documented positive consequences for performance and creativity in knowledge work (Rodan, 2010).

For women students seeking the MBA, building friendships with men is likely to add to the value of the degree program. Women value networks with the potential to enhance their career status, and women-only networks are sometimes perceived as adding little career value (O'Neil, Hopkins, & Sullivan, 2011; Olsen, Parsons, Martins, & Ivanaj, *in press*). Research continues to show that women's connections to other women are less beneficial for career development than are their connections to men (Belliveau, 2005; Zhu, Konrad, & Jiao, 2016). As such, MBA program initiatives that increase men's willingness to connect with their female peers have the potential to increase women's career advancement, and over time, increase the representation of women in senior management positions. Similarly, international students may accrue career benefits from domestic connections, and initiatives to increase such friendship ties may improve the value of a North American MBA degree to international students' career development.

Because MBA programs bring together students from a wide range of countries, industries, and functional backgrounds, they provide a rich opportunity for students to build a diverse friendship network. Such diverse networks are beneficial to both majority and minority group members. Yet our findings show that students may not take full advantage of this opportunity on their own. As such, MBA programs could help students maximize the value of their degree by motivating them and giving them the skills to build a diverse friendship network

during the time that they are together in the program. Failing to do so is a missed opportunity.

Research suggests several direct mechanisms which may help in this regard—many of which are already enacted although not universally. Following research evidence of the impact of high-quality messages from respected sources on attitudes (Petty & Briñol, 2010), many program leaders explicitly articulate the value of the opportunity to build international friendships while in the MBA program and share data on the importance of international business in a variety of industries. Consistent with findings that demonstrate the effectiveness of meaningful contact for building relationships (Galli & Muller-Stewens, 2012; Pettigrew & Tropp, 2006), many programs use stratified random sampling to create diverse student teams to provide all students practice working with individuals from other countries as well as members of other gender identities. Acknowledging the importance of self-efficacy for engaging with diverse others (Combs, 2002), various courses and program activities include skills for successful cross-cultural interaction as learning goals (Costigan & Brink, 2015). For example, Ibarra's (1996) network assessment exercise helps MBA students identify patterns in their personal networking strategies, providing opportunities for instructors to lead class discussions about the value of building a diverse network. If properly debriefed, such personal assessments can illustrate the missed opportunity to both majority and minority group members. Faculty have started to increase the amount of international material included in coursework to demonstrate the value of international students' knowledge of other cultures and institutions for business success (Zhang & Xia, 2015). Many faculty members also serve as role models for building relationships across lines of diversity by demonstrating positive interactions with international students inside and outside the classroom.

In addition to further diffusion of these direct mechanisms, perhaps the largest potential to change this outcome could be achieved through subtle social clues utilizing the benefits of active learning. CEOs are frequently considered very difficult to influence directly through traditional methods, perhaps even more so than MBA students, yet the seemingly innocuous social cues of actively rating their existing network ties on a different set of characteristics have been shown to modify CEO networking behavior (Seidel & Westphal, 2004). Just as CEOs can be influenced to change their board of director network tie compositions toward similar others or

those with diverse experiences using the subtle social cues of a network survey, perhaps a similar intervention would be effective for an MBA target population. Ibarra's (1996) network assessment is a step in this direction. By building upon the CEO networking behavior findings, future research could attempt an intervention by surveying entering MBA students about the diversity of their network composition by asking them to actively rate each classmate on factors such as "How much potential to learn something different than what I already know would a friendship with this person provide?" or "How much experience does this person have with new things I should know more about?" Later in the program after the students have started to build their networks they could similarly be asked to actively rate each classmate on factors such as "How much unique advice does this person provide me?" or "How much have I learned from this person that I did not already know?" The Seidel and Westphal study also suggests that reporting back to the students about where they stand compared to their classmates on the overall diversity of their individual networks would have an intensification effect as an intervention to encourage the building of diverse networks.

In sum, our findings serve as a potential wake-up call to MBA programs seeking to maximize the value of the MBA for students. Without guidance and support, domestic MBA students may miss the opportunity to build a valuable global friendship network. Furthermore, self-segregation among domestic male students may reduce the sense of inclusion for domestic women, international men, and international women (Shore et al., 2011). The development of a diverse friendship network is likely to enrich the MBA student experience for all demographic groups, and student effectiveness in networking across diversity is likely to enhance the value of the MBA for firms. The natural tendencies to miss the diverse network building opportunities provided during an MBA program are a key target to address to enhance the overall value of a program.

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