

Literature Review and Analysis Documenting the Impact of Scientific Workforce Diversity on the Scientific Enterprise and the Public Good

Evidence in Business Research

This report summarizes literature about the effects of workforce diversity in business and laboratory settings. The report is a compilation of 47 studies that were culled from business and economic journals and other unpublished business sources.

A growing body of business literature has focused on the relationship between team diversity and team outcomes to examine whether diverse teams perform better relative to homogeneous groups. The findings in this literature pointed to the need to define diversity, and to manage diversity in settings where the relevant groups may not otherwise collaborate.

Research consistently shows that groups composed of *cognitively diverse* individuals develop more effective approaches in solving complex problems, and generate more creative and innovative ideas relative to groups that are not cognitively diverse (Hoffman & Maier, 1961; Hong & Page, 2004; Page, 2007; Johnson, 2008). The concept of cognitive diversity is defined as the degree to which group members differ in terms of experiences, interpretations, perspectives, and problem solving mechanisms (Horwitz & Horwitz, 2007). Johnson (2008) explained that because cognitively diverse groups supply teams with a variety of cognitive attributes, they derive solutions that are more creative and generally superior relative to solutions developed by groups of experts that are cognitively similar in nature. In fact, as the complexity of problems increased, the diverse collectives performed better and were more resilient in attitude to change, relative to cognitively similar collectives.

Race and ethnicity, disability status, and socioeconomic status are often taken as proxies for cognitive diversity. Research by Page (2007) demonstrates that cognitive diversity is highly correlated with identity diversity (i.e., individuals who belong to different races, religions, age groups, genders, etc.), suggesting that identity-diverse groups also contribute to better outcomes, and outperform identity-homogeneous groups.

The power of collective thinking for decision making and performance has been explored particularly in organizational settings, where researchers analyzed the competitive advantages of using diverse teams of employees in organizations. *Compositional diversity* refers to the extent to which members of a group, such as employees in an organization, team members, and students, are homogeneous or heterogeneous. Researchers have confirmed that diverse employees increase organizational flexibility, creativity, and problem solving, improve firms' resource acquisition and profitability, enhance market advantage, enhance and increase the firms' customer base, increase revenues, and reduce costs (Watson, et al. 1993; McLeod, Lobel, & Cox, 1996; Richard, 2000, 2004).

Researchers are cautious about the potential negative implications on performance that can result from a diverse team's lack of coordination, tension, and intra- or inter-group conflict in organizations that fail to promote multicultural learning experiences (Horwitz & Horwitz, 2007). Although team diversity can potentially create a positive organizational synergy, diverse teams enhance performance only when organizations foster an environment that promotes learning from diversity (Kochan et al., 2003; IOM 2004).

Abundant evidence supports the value of cognitive and demographic diversity for team performance. Individuals with diverse backgrounds contribute ideas, perspectives, and experiences that help create highly effective and strategic teams that are resilient, robust, and generally outperform homogenous groups, even those groups that consist of the best performers. This evidence may be applicable to other settings, particularly in science laboratories where groups of researchers work on complex issues that require synergistic performance and problem solving abilities. Johnson (2008) provides an example of diversity in a research setting, citing a group of researchers using the Internet for their own needs to create a new problem solving capability: a symbiotic intelligence. Johnson argues that diversity is the essential requirement for collective intelligence performance. Embracing and leveraging diversity—of people, perspectives, ideas, and experiences, is critical for fostering a climate of innovation, providing a compelling argument and support for the necessity of initiatives and programs that cultivate and encourage diverse learning environments.

Science and engineering are increasingly global enterprises (NSF 2010), and globalization poses many challenges and has many implications for these fields. Cultural competence has taken on increased significance as ever more diverse people interact with each other. Major publications, such as “Rising Above the Gathering Storm” and its more recent revision, which have been instrumental in shaping the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science (COMPETES) Act and its reauthorization, calls for renewed attention to human resource issues in the science, technology, engineering, and mathematics (STEM) fields. These reports caution that the United States (US) is in danger of losing its competitive edge, especially in innovation, which has long been a key strength of the nation.

To remain globally competitive, organizations must recognize the value of engaging and leveraging increasingly diverse populations, which, in the United States, include racial and ethnic minorities, persons with disabilities, and individuals from disadvantaged backgrounds. At present, 34% of the US population between 18 and 24 years of age are from three underrepresented minority groups (African Americans, Hispanics, and American Indians and Alaska Natives). By 2050, with sustained growth in the Hispanic population, the US will rely even more on individuals of this group to take on positions in the STEM workforce (Frehill et al. 2008, US Census Bureau 2010). It is imperative that these groups have access to world-class educational and research experiences, so that the US can maintain its competitive edge in an increasingly global economy.

The literature shows that diverse groups contribute unique experiences, skills, and perspectives that have been associated with positive effects on organizational performance (Herring 2009). There has been a growth in research on diversity in the management literature exploring the

effects of a diverse workforce on organizational effectiveness. The general consensus is that diversity improves organizational performance and provides a competitive advantage through increased creativity and problem solving capabilities (Cox & Blake, 1991; Richard, Cochan, & McMillan-Capehart, 2002; Herring 2009). Cox and Blake (1991) reviewed the literature and data to examine the relationship between diversity and firms' competitive advantages and concluded that increasing diversity and effective management of diverse staff led to an improvement in cost resource acquisition, marketing, creativity, problem solving, and system flexibility. In a separate paper, Cox (1991) suggested that multicultural organizations maximize benefits of diversity in terms of creativity, innovation, decision making, marketing success, and distribution of economic opportunity while minimizing the costs associated with turnover, conflict, and communication breakdown. Grossman and Maggi (2000) suggested that the more diverse a region's workforce is, the more likely that organizational units will have a positive net trade balance in manufactured goods. Finally, Herring (2009) reported that sales revenues, number of customers, profitability, and market share were all positively influenced by increased racial or ethnic diversity.

Another set of literature suggests that diversity improves organizational competitive advantage and, therefore, performance, but only if organizations can effectively manage diversity (McLeod, Lobel, & Cox, 1996; Kalev, Dobbin, & Kelly 2006; Choi and Rainey, 2010). Researchers argued that organizations must foster an environment that promotes learning from diversity experiences in order to observe positive effects of diversity on performance (Smedley, Stith, & Bristow, 2004; Kochan et al., 2003; Richard, 2000; Copeland, 1998). Richard, Cochan, and McMillan-Capehart (2002) developed a framework for understanding what conditions are necessary to obtain positive organizational effects from visible diversity (i.e., race, gender, and age). They suggested that low and moderate levels of diversity are effective in improving organizational performance, whereas high levels of diversity may not be as effective because of intergroup conflict that often arises among members with different backgrounds. Organizational culture can moderate the relationship between diversity and firms' effectiveness, with firms that have more collectivist cultures being more effective in moderating this relationship than firms with individualistic cultures.

Kalev, Dobbin, and Kelly (2006) show that much of the organizational diversity training is not effective. The research shows that mentoring programs, diversity taskforces, and diversity managers are critical in achieving the diversity goals of an organization, by aiding in the recruitment and retention of diverse employees. Smedley, Stith, and Bristow's IOM (2004) report on increasing the diversity of the healthcare workforce, also underscores the need to effectively manage diversity.

The benefits of diversity for performance observed in organizational settings, suggest the importance of leveraging diversity to encourage innovation and creativity. To maximize these benefits, it is imperative that the health or science workforce be skilled and trained to function and interact with widely diverse groups, cultures, ideas, and viewpoints.

Kochan, T, Bezrukova, K, Ely, R, Jackson, S, & et al, . (2003). The Effects of Diversity on Business Performance: Report of the Diversity Research Network. *Human Resource Management*, 42(1), 3-21.

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2-Null/No Effect ("diversity has no effect on outcome")

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Annotated Summary:

The authors provided a review of the results from four studies of Fortune 500 companies (two information processing firms, a financial services firm, and a large retail company), and examined the relationship between gender and racial diversity and business performance. It was found that racial and gender diversity did not have a positive or negative effect on performance. When heterogeneity was shown to have a negative effect on performance, it was mitigated by training and development-focused initiatives, and the possibility that racial diversity could have enhanced performance when organizations fostered an environment that promotes learning from diversity. Gender diversity was less problematic than racial diversity and had either no effects or positive effects on diversity.

Horwitz, S K, & Horwitz, I B. (2007). The Effects of Team Diversity on Team Outcomes: A Meta-Analytic Review of Team Demography. *Journal of Management*, 33(6), 987-1015.

35

2-Null/No Effect ("diversity has no effect on outcome")

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Annotated Summary:

Although a great deal of research over the past few decades has been conducted to examine the complex relationship between team diversity and team outcomes, the impact of team diversity on team outcomes and moderating variables potentially affecting this relationship are still not fully known, with mixed findings in the literature. The authors quantitatively reviewed extant work and provided estimates of the relationship between team diversity and team outcomes. In particular, the effects of task-related and bio-demographic diversity at the group-level were meta-analyzed to test the hypothesis of synergistic performance resulting from diverse employee teams. A total of 35 studies were identified and from those studies 78 correlations were gathered. Since most of the studies are observational and not randomized experiments, the correlation coefficient was selected as a conservative outcome statistic. Support was found for the positive impact of task-related diversity on team performance although bio-demographic diversity was not significantly related to team performance. Moreover, no discernible effect of team diversity was found on social integration.

Cox, T, Lobel, SA, & McLeod, PL. (1991). Effects of Ethnic Group Cultural Differences on Cooperative and Competitive Behavior on a Group Task. *Academy of Management Journal*, 34, 827-847.

136

1-Positive ("diversity has a positive impact on outcome")

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Annotated Summary:

This study examined the hypothesis that differences in the cultural norms of Anglo-Americans and three other ethnic groups—Asian, Hispanic, and Black Americans—will result in different behaviors on a group task. The subjects, 136 graduate and undergraduate students from several academic majors who attended a large public university in the Midwestern United States, were paid as volunteers and contacted by several methods. Form letters were sent to members of several student organizations, announcements in organization behavior classes, and letters placed in the mailboxes of students in the law, engineering, and business schools of the university. The written and verbal announcements invited students to participate in a two-to-three-hour-long research project on group dynamics. Anglo subjects were randomly assigned to a group that was either ethnically diverse or all-Anglo. All non-Anglo subjects were randomly assigned to ethnically diverse groups. Individual and group responses were measured using a Prisoner's Dilemma task in which participants could choose to compete or cooperate with another party. The researchers' hypothesis – that groups composed of people from collectivist cultural traditions would display more cooperative behavior than groups composed of people from individualistic cultural traditions – was confirmed. Implications for future research and for organizations seeking to manage diversity were discussed.

Miller, T, & Del Carmen Triana, M. (2009). Demographic Diversity in the Boardroom: Mediators of the Board Diversity-Firm Performance Relationship. *Journal of Management Studies*, 46(5), 755-86.

0

1-Positive ("diversity has a positive impact on outcome")

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Annotated Summary:

The authors' analysis revealed that boards appear to be more gender diverse than racially diverse. Females on boards did not hold as many positions of leadership or management as males, so they were not as visible as minorities. Moreover, females were less likely than racial minorities to be chairpersons of major committees, or to gain management experience. The authors' descriptive statistics indicated that the average board included 0.41 minority chairpersons per board, while the average for female chairpersons was 0.30. Even though female chairpersons tended to have slightly longer tenure than minority chairpersons, they were less often the chairperson. The authors verified that their findings were consistent with other research.

Richard, OC. (2000). Racial Diversity, Business Strategy, and Firm Performance: A Resource-Based View. *Academy of Management*, 43(2), 164-77.

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3-Negative ("diversity has negative effect on outcome")

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Annotated Summary:

The author provided literature on resource-based and contingency approaches with respect to diversity, and then presented a collection of financial data from the Sheshunoff Bank Search database on 63 participating banks across California, Kentucky, and North Carolina. The author also mailed questionnaires to each bank's HR official, of which 79 were returned. It was found that racial diversity enhances productivity, and that the relationship intensifies as strategic growth increases.

Richard, OC, Bamett, T, Dwyer, S, & Chadwick, K. (2004). Cultural Diversity in Management, Firm Performance, and the Moderating Role of Entrepreneurial Orientation Dimensions. *Academy of Management*, 28(12), 1213-33.

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3-Negative ("diversity has negative effect on outcome")

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Annotated Summary:

The author provided results from a survey of 535 bank presidents that inquired about entrepreneurial capacity with respect to innovativeness, risk taking, and pro-activeness; the presidents' survey was supplemented by 153 HR executives with separate questionnaires on the demographics of the banks' management. It was found that the relationship between gender heterogeneity and firm performance varied. High-risk-taking firms, firms with homogeneous management groups and those with very heterogeneous management groups performed worse than firms with moderately heterogeneous management groups. Additionally, there was only marginal evidence of relationship between racial diversity and performance, but there was stronger support for gender diversity. Risk taking emerged as a negative moderator of the diversity-performance relationship.

Richard, OC, Murthi, BPS, & Ismail, K. (2007). The Impact of Racial Diversity on Intermediate and Long-Term Performance: The Moderating Role of Environmental Context. *Strategic Management Journal*, 28(12), 1213-33.

850

1-Positive ("diversity has a positive impact on outcome")

0

Annotated Summary:

The authors conducted a firm-level, 6-year longitudinal analysis on the impact that racial diversity in human resources has on financial performance. When considering short-term performance outcomes, the authors predict a curvilinear relationship between diversity and performance (i.e., firm productivity).

Although the authors found evidence of a U-shaped relationship between racial diversity and productivity, the relationship was stronger in service-oriented relative to manufacturing-oriented industries and in more stable vs. volatile environments. For long-term profitability, the authors proposed and found support for a positive, linear relationship between diversity and performance (i.e., Tobin's q) rather than a nonlinear one. This linear effect was stronger and more positive and munificent compared to resource-scare environments. Thus, the authors made a contribution by reconciling existing, often contradictory, studies by demonstrating the potential short-term vs. long-term impact of racial diversity on performance. They provided a basis to suggest that the effects were non-linear overall and complexity theory should be employed when exploring this relationship.

Overall, findings reveal that within various contexts diversity has a nonlinear effect on shorter-term performance, and a positive and linear impact when using a longer horizon. Beyond moderate levels of diversity the authors found a positive effect from racial diversity on both short-term and long-term measures of performance.

Richard, OC, Kochan, TA, & Mcmillan-Capeheart, A. (2002). The impact of visible diversity on organizational effectiveness: Disclosing the contents in Pandora's black box. *Journal of Business and Management*, 8, 1-26.

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2-Null/No Effect ("diversity has no effect on outcome")

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Annotated Summary:

This article built on the literature about diversity's impact, available in 2002. The authors posited that heterogeneity was likely to have a U-shaped outcome profile because there was literature to indicate both positive and negative outcomes. Much of the literature's negative findings related to workgroup functioning and supervisor-subordinate relations. The authors stressed that it should be noted that much of the negative literature was from the 1970s-1980s, so that it was possible, 20 or so years later, that the micro-level processes outlined in the literature were different. Previously, people had little contact with members of other racial/ethnic groups, so in workplace settings, these differences could have presented more of a problem. Although racism still existed in 2002, it was possible that it was not quite as problematic as when the reviewed literature was written, according to this article's authors.

The authors concluded that diversity index sizes of 0-0.25 (small) were likely to see positive, but modest, impacts on the results. Middle-sized levels of .25-.5 were expected to have larger impacts than less diverse organizations, while high levels of diversity (measured by an index of greater than 0.5) were expected to embody a certain amount of conflict within the organization, which could potentially hinder creativity and prevent better/improved outcomes.

Bendick, M, Egan, M, & Lanier, L. (2010). The business case for diversity and the perverse practice of matching employees to customers. *Personnel Review*, 39(4), 468-486.

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3-Negative ("diversity has negative effect on outcome")

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Annotated Summary:

The authors analyzed employee data from a large US retailer, and the US advertising industry, to better understand the business case for diversity, and to see if there was a case for matching employees to customers. The authors found that their data supported other research findings that some businesses adopted a bad business model, which was to diversify the workforce in an attempt to tap into minority markets. This led to discriminatory employment practices, which translated into lost earnings, no professional development, and a lack of promotions for African Americans and women hired under this premise.

Buttner, E, Lowe, K, & Billings-Harris, L. (2009). The challenge of increasing minority-group professional representation in the United States: intriguing findings. *International Journal of Human Resource Management*, 20(4), 771-789.

143

1-Positive ("diversity has a positive impact on outcome")

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Annotated Summary:

This article discussed six possible theories as to why women and minorities are often underrepresented in professional occupations. The authors also surveyed leaders in US business schools to evaluate their perceptions and policies on diversity. The findings were that organizational units where leaders reported greater racial awareness, and units where leaders reported greater recognition of cultural differences, produced a greater representation of minority-group professionals. Furthermore, recruitment strategies and performance feedback for minority-group professionals were associated with higher levels of minority professional representation. Diversity as a strategic priority, however, was not associated with minority representation.

Hassan, M. (2010). The impact of workplace diversity on the working environment and climate in engineering organizations: A study of ethnicity, culture, spiritual belief, and gender. *Dissertation Abstracts International Section A*.

209

2-Null/No Effect ("diversity has no effect on outcome")

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Annotated Summary:

The author used a convenience sample of working engineers in the United States, to which an online 47-item survey was administered. The first 10 items were demographic variables, or the independent variables in this study.) The remaining 37 were 5-point Likert-scale items that asked about the respondents' perceptions and opinions about their treatment by their employers; complaints lodged by employees based on group membership; and their belief in fairness of policies and practices and the like. The scores on the 37 items were summarized to produce the dependent variable, labeled by the author as "satisfaction with diversity." The sample diversity was seriously problematic: not only were women overrepresented, but there were insufficient numbers of people in the various demographic subgroups. The dependent variable, of course, was deeply flawed by poor instrumentation (e.g., almost every question was double-barrel and all items were coded in the same direction). Principal finding: there were no differences across groups in the level of satisfaction with workplace diversity.

Athey, S, Avery, C, & Zemsky, P. (2000).
Mentoring and Diversity. *American
Economic Review*, 90(4), 765-786.

0

1-Positive ("diversity has a positive impact on outcome")

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Annotated Summary:

This paper developed a model to analyze the relationship between the diversity of a firm's upper level and its internal promotion policies. The authors considered the problem faced by a firm in choosing which of its lower-level employees to promote as its existing upper-level workers retire. Employees were categorized according to their capacity for upper-level work, and by a type, which can be interpreted as gender, ethnicity, cultural background, personality type, or even skill set (e.g., operations versus marketing skills for managers, theorists versus empiricists for academics). The authors assumed that the lower level would be split evenly between two types. The authors referred to the type that has most of the upper-level positions as the "majority" and the other type as the "minority."

The results showed that type-based mentoring had significant and sometimes complex effects on the most effective promotion policies, and on the evolution of diversity at a firm. The direct effect of type-based mentoring was that entry-level employees of the majority type acquired more human capital, and thus firms who based promotions solely on ability promote more majority employees. However, since upper-level diversity affected a firm's profits through the mentoring of future workers, the optimal policy of a forward-looking firm would generally involve promoting workers who did not have the highest ability to influence the evolution of diversity over time.

Hong, Lu, & Page, Scott E. (2004). Groups of diverse problem solvers can outperform groups of high-ability problem solvers. In W.Baumol (Ed.), *Proceedings of the National Academy of Sciences of the United States of America* (pp. 16385-16389). New York, NY: New York University.

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1-Positive ("diversity has a positive impact on outcome")

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Annotated Summary:

The authors introduced a general framework for modeling functionally diverse problem-solving agents. In this framework, problem-solving agents possess representations of problems and algorithms that they use to locate solutions. The authors use this framework to establish a result relevant to group composition. The authors find that when selecting a problem-solving team from a diverse population of intelligent agents, a team of randomly selected agents outperforms a team comprised of the best-performing agents. This result relies on the intuition that, as the initial pool of problem solvers becomes large; the best-performing agents necessarily become similar in the space of problem solvers. Their relatively greater ability is more than offset by their lack of problem-solving diversity. Thus, even if we were to accept the claim that IQ tests, Scholastic Aptitude Test scores, and college grades predict individual problem-solving ability, they may not be as important in determining a person's potential contribution as a problem solver as would be measures of how differently that person thinks.

Hoffman, L. R., & Maier, N. R. F. (1961). Quality and acceptance of problem solutions by members of homogeneous and heterogeneous groups. *The Journal of Abnormal and Social Psychology*, 62(2).

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1-Positive ("diversity has a positive impact on outcome")

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Annotated Summary:

The authors explored a variety of problems used to test the generality of earlier findings that heterogeneous personality groups were superior in solving problems over groups composed of people with homogeneous personalities. Sixteen homogeneous and 25 heterogeneous four-person groups were initially formed in the laboratory sections of an undergraduate course on the psychology of human relations. Homogeneous groups consisted of people with high positive profile correlations among their scores on two personality scales, heterogeneous groups of people with near-zero or negative correlations. The group members interacted weekly in case discussions, problem solving, and role playing. Five different problems were used to test the relative abilities of the two types of groups, four with some component of quality and one only involving acceptance. The subjects were also questioned about their satisfaction with the solution and with their influence over the solution for each problem. The following results were obtained: 1. Heterogeneous groups produced a higher proportion of high quality solutions than did homogeneous groups in three of the four problems with quality components. On the fourth problem, there was little difference and both types of groups produced poor solutions for the most part. 2. Mixed-sex groups tended to produce higher quality solutions than did all-male groups. 3. Satisfaction with the problem solutions was about the same in the homogeneous and heterogeneous types of groups. 4. Satisfaction with the solutions was shown to be more strongly correlated with the members' satisfaction with the amount of influence they had over the solution than with the objective quality of the solutions or with the members' actual amount of influence.

McLeod, Poppy, Lobel, Sharon, & Cox, Taylor. (1996). *Ethnic Diversity and Creativity in Small Groups*. Small Group Research.

135

1-Positive ("diversity has a positive impact on outcome")

1

Annotated Summary:

The authors addressed the belief among managers that ethnic diversity, when well managed, can provide organizations with certain competitive advantages. But the belief in this value-in-diversity hypothesis rests largely on anecdotal rather than empirical evidence. Results are reported of a controlled experimental study that compares the performance in a brainstorming task between 34 groups composed of 135 undergraduates and graduate students. The groups composed of all Caucasians were compared with groups composed of Caucasian, Asian, African, and Hispanic Americans. The particular brainstorming task used – the Tourist Problem – was chosen for its relevance for diversity along the dimension of ethnicity. The ideas produced by the ethnically diverse groups were judged to be of higher quality, more effective, and more feasible than the ideas produced by the homogeneous groups. Members of homogeneous groups reported marginally more attraction to their groups than did members of diverse groups. Directions for future research with respect to the degree of diversity, the nature of the task, and group process were discussed.

Herring, C. (2009). Does Diversity Pay? Race, Gender, and the Business Case for Diversity. *American Sociological Review*, 74, 208-224.

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1-Positive ("diversity has a positive impact on outcome")

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Annotated Summary:

Using data on 506 firms from the 1996-1997 National Survey of Organizations, Herring demonstrated that even when economic sector, type of enterprise, size of establishment and region are controlled, it is found that increased racial diversity is associated with greater sales revenues, increased profitability, more customers, and greater market share of for-profit businesses. Similar results were found for gender diversity having had a positive effect on the number of customers, sales revenue, and profitability, but not market share.

Grossman, G. & Maggi, G. (2000).
Diversity and Trade. *The American
Economic Review*, 90(5), 1255-1275.

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1-Positive ("diversity has a positive impact on outcome")

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Annotated Summary:

The authors hypothesized and demonstrated, within a set of broad assumptions and limits, that the more diverse a region's workforce was, the more likely that unit was to have a positive net trade balance in manufactured goods. The authors also illustrated that manufactured goods likely be exported would be those that require a certain amount of individuality and innovation. In other words, specialists or "stars" in the labor market were able to emerge as a result of innovations with their work, which was supported by a very diverse and skilled labor market.

Pitts, D, & Wise, L. (2010). Workforce Diversity in the New Millennium: Prospects for Research. *Review of Public Personnel Administration*, 30(1), 44-69.

89

2-Null/No Effect ("diversity has no effect on outcome")

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Annotated Summary:

The authors analyzed 89 research articles on workforce diversity published in public administration journals from 2000 to 2008, to determine the extent of research on diversity in public-sector employment. The authors looked at multiple dimensions of diversity including sex/gender, race/ethnicity, disability status, age, education or function, sexual orientation, social class, religion, and nationality/language. The authors found that about half of the studies focused on issues of sex/gender and more than one-third focused on race/ethnicity, and very few considered other aspects of diversity. Furthermore, over half of the studies used quantitative methods, and most of them were focused on federal or state government. A few considered diversity issues in local government, special districts, or public schools. The authors concluded that more research was needed on diversity issues other than sex/gender and race/ethnicity, and that more attention needed to be paid to local, special districts, and public schools' diversity issues.

Jones, J, Wilson, D, & Jones, P. (2008). Toward Achieving the "Beloved Community" in the Workplace Lessons for Applied Business Research and Practice From the Teachings of Martin Luther King Jr.. *Business & Society*, 47(4), 467-483.

861

1-Positive ("diversity has a positive impact on outcome")

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Annotated Summary:

In this study, the authors analyzed data from a Gallup Organization public opinion poll commemorating the 40th anniversary of the Equal Employment Opportunity Commission, to illustrate how businesses might incorporate Dr. Martin Luther King Jr.'s social justice themes of belongingness and connectedness in ways beneficial to desirable organizational outcomes (e.g., employee satisfaction, employee loyalty, employee retention). Results from a racially/ethnically diverse sample of more than 1,200 Americans indicated that, among other outcomes, racial and ethnic minority employees who feel a sense of engagement (i.e., belongingness and connectedness) with their workplaces, and who believe in their organization's commitment to diversity, feel a heightened affective connection at work. Furthermore, negative psychosocial outcomes, due to perceived discrimination-based inequity in the workplace, were mediated by engagement and trust in organization diversity policies. The authors discussed implications of these findings for future management research and practice.

Ryan, J, Hawdon, J, & Branick, A. (2002). The Political Economy of Diversity: Diversity Programs in Fortune 500 Companies. *Sociological Research Online*.

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Annotated Summary:

Using data from a 1998 SHRM survey, this study examines the prevalence and nature of diversity initiatives in Fortune 500 companies. The rhetoric of diversity in industry suggests that a diverse workforce is good for business. Diversity is typically defined in terms of such demographic factors as race, age, gender, ethnic background, and, to a lesser extent, sexual orientation. The authors' analysis shows that most Fortune 500 companies have some diversity initiatives, but that these initiatives are disproportionately aimed at certain minority groups. Thus, there appears to be a political economy of diversity in which some categories of diversity are valued over others. We place this analysis within the larger context of a changing economic, occupational and political factors affecting the diversity movement.

In 1998 Fortune magazine and the Society for Human Resource Management (SHRM) undertook a study of diversity programs in Fortune 500 companies. In the spring of 1998, 491 companies were contacted by telephone. Representatives from human resource departments in 179 companies agreed to participate, yielding a response rate of 36 percent. The analysis of the SHRM data presented here examines the extent to which diversity programs have been implemented in the Fortune 500 companies in the sample, and looks at the groups for whom these programs have been implemented. More specifically, the authors were interested in two questions: (1) Are organizations interested in increasing diversity, at least as reflected in the establishment of diversity programs? And (2) If so, what kinds of diversity do corporations seem to be most interested in?

The SHRM survey reveals that nearly 75 percent of the organizations surveyed reported having a diversity program in place, and another 8.9 percent were planning to institute a program. Only 16.2 percent did not have a program and had no plans to institute one. The mean length such programs had been in place was just over six years (S.D.=5.88). Nearly 75 percent of programs have been in place less than 10 years, supporting Kelly and Dobbin's (1998) notion that diversity programs came into vogue with the decline of political and legal support for EEO/AA programs. These numbers seem to indicate a major increase in programs in the 1990s.

Watson, WE, Kamalesh, K, & Michaelsen, LK. (1993). Cultural Diversity's Impact on Interaction Process and Performance: Comparing Homogeneous and Diverse Task Groups. *Academy of Management Journal*, 36, 590-602.

173

1-Positive ("diversity has a positive impact on outcome")

6

Annotated Summary:

The interaction process and performance of culturally homogeneous and culturally diverse groups were studied for 17 weeks. The 173 students in an upper-level principles of management business course were divided by 36 work groups. Seventeen of the groups were culturally homogeneous composed of 4 or 5 white students. The 19 culturally heterogeneous groups were composed of 1 white, 1 black, 1 Hispanic, 1 foreign national, and possibly one more foreign national or Hispanic students. Data were gathered on four group tasks performed at approximately one-month intervals. Each task consisted of completing a structured analysis of a case study that described situations prevalent in "real-life" companies. Evaluation of the case analyses was based on four predetermined task criteria: (1) the range of perspectives shown in evaluating the situation, (2) the number of potential or existing problems identified (problem identification), (3) generation of multiple alternatives (alternatives generated), and (4) the quality of the recommended solution (quality of solutions). Overall performance on the task was the average of the ratings on the four criteria. Over time, both types of group showed improvement on process and performance, and the between-group differences converged. The improvements in process and performance were more rapid for the culturally diverse groups. By week 17, there were no differences in process or overall performance, but the heterogeneous groups scored higher on two task measures (range of perspectives and alternatives generated).

van Knippenberg, D., Haslam, S. A., & Platow, M. J. (2007). Unity Through Diversity: Value-in-Diversity Beliefs, Work Group Diversity, and Group Identification. *Group Dynamics*, 11(3), 207-222.

346

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Annotated Summary:

These researchers studied the role of such diversity belief, as a moderator of the relationship between work group diversity and individuals' identification with the work group, across two studies. Study 1 was a cross-sectional survey that focused on gender diversity and gender diversity beliefs. Study 2 was a laboratory experiment in which work group diversity and diversity beliefs were manipulated. Results of both studies validated the prediction that work group diversity and group identification were positively related, the more individuals believed in the value of diversity.

King, E. B., Hebl, M.R., & Beal, D.J. (2009). Conflict and Cooperation in Diverse Workgroups. *Journal of Social Issues*, 65(2), 261-285.

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Annotated Summary:

The authors reviewed research examining the influence of diversity on conflict, and cooperation within the context of the workplace. The authors suggested that the literature on this topic shows mixed results, wherein heterogeneous teams are more likely to experience conflict than homogenous teams; on the other hand, although theory predicts that similarity fosters cooperation, there is substantial evidence that this is not always the case. The author offered explanations for these conclusions, including the nature of team tasks, variability in dependent variables of interest that studies employ, or the type of diversity under consideration.

Stevens, F. G., Plaut, V. C., & Sanchez-Burks, J. (2008). Unlocking the benefits of diversity: All-inclusive multiculturalism and positive organizational change. *The Journal of Applied Behavioral Science*, 44(1), 116-133.

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2-Null/No Effect ("diversity has no effect on outcome")

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Annotated Summary:

The article was intended to complement and extend existing theory on how organizations manage demographic diversity. The researchers posited that workforce diversity—if approached in a way that maximizes inclusion and minimizes resistance—presents organizations with opportunities to create change that fosters the positive human potential of their employees. The authors explored the positive and negative aspects of approaching diversity according to the colorblindness theory and multiculturalism theory. Majority group members typically endorse a colorblind approach to diversity because it is perceived as more inclusive of their group; minorities on the other hand distrust colorblind initiatives because they are perceived as being exclusive of their group. The authors suggested that all-inclusive multiculturalism (AIM) meets the needs of organizations because it emphasizes that diversity includes all employees (minorities and non-minorities). The AIM approach promises to enhance positive relationships across differences, resulting in heightened employee engagement and individual and organizational performance. The authors suggested incorporating an all-inclusive language in all forms of organization communication, and including all groups in diversity structures and policies.

Unzueta, MM, & Binning, KR. (2009). *Diversity is in the eye of the beholder: How majority and minority group members define diversity*. Unpublished manuscript. Anderson School of Management, University of California, Los Angeles, California

109

2-Null/No Effect ("diversity has no effect on outcome")

0

Annotated Summary:

This article reported results from four studies and suggested that the concept of diversity carries different meanings for majority (e.g., men, Whites) and minority (e.g., women, racial minorities) group members. The survey of 109 undergraduate students in Study 1 revealed that women and racial minorities were more associated with the concept of diversity than men and Whites. Indeed, Study 1 suggested that diversity was more in-group relevant for minority than majority group members. Moreover, Studies 2 and 3 found that female and Asian participants – individuals for whom diversity was an in-group relevant issue – considered both numerical and structural representation when making their assessments of diversity. However, members of these groups did not always pay attention to structure; they only accounted for structure when they were assessing diversity with respect to their group (i.e., women assessing diversity with respect to gender and Asian participants assessing diversity with respect to race). Conversely, male and White participants, individuals for whom diversity was less in-group relevant, based their diversity assessments primarily on the numerical representation of minority employees. Study 4 provided direct evidence for the idea that group-interests serve as motivation for minority group members to consider structural representation when making diversity assessments. This experiment found that only African Americans who were high in racial identification (i.e., highly group-interested individuals) considered the structural representation of African-American employees when making diversity assessments. Conversely, African American participants who were low in racial identity (i.e., those who lack the group-interest motivation) based their diversity assessments primarily on numerical representation. The results of these experiments implied that individuals were motivated to protect their in-group defined diversity in a relatively complex manner, as entailing both numerical and structural representation of minorities in an organization. Conversely, individuals for whom diversity was not in-group relevant, or who were low in group-interest, seemed to define diversity more simply. They defined it as primarily entailing the numerical representation of traditionally underrepresented minorities.

Page, S. (2007). *The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies*. Princeton, NJ: Princeton University Press.

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1-Positive ("diversity has a positive impact on outcome")

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Annotated Summary:

In this book, Page developed a framework to explain why and how cognitively diverse groups derived more effective problem solutions and made more accurate predictions than cognitively homogeneous groups. Page defined diversity as differences in cognitive abilities (i.e., perspectives, interpretations, heuristics or ways of generating solutions to problems, and predictive models or ways of inferring cause and effect) among individuals. The author found that people with different perspectives and heuristics outperformed those who relied on homogeneous perspectives and heuristics. Diverse groups tended to find better solutions and contribute to overall productivity. Also, diverse groups of people were able to make more accurate predictions than homogenous groups. Page further proposed a connection between cognitive and identity diversity (i.e., individuals who belong to different race, religion, age, gender and so on) and argued that, given high correlation between cognitive and identity diversity, identity differences also contributed to better outcomes.

Institute of Medicine. (2004). *In the Nation's Compelling Interest: Ensuring Diversity in the Health Care Workforce*. National Academies of Science.

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1-Positive ("diversity has a positive impact on outcome")

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Annotated Summary:

This study was supported by the National Academy of Science and the W.K. Kellogg Foundation. The results in this book were obtained by the Committee on Institutional and Policy-Level Strategies for Increasing the Diversity of the U.S. Health Care Workforce and Board on Health Science Policy. The Committee sought to assess the potential for institutional and policy-level strategies to increase URM participation in the health professions. The methodology involved research on the pertinent literature, input from interested parties in a series of six workshops, and study of existing models of success, which resulted in a series of recommendations. The committee stated reasons why racial or ethnic diversity was important in health profession fields (i.e., dentistry, medicine, nursing, and psychology) and recommended a set of guidelines on how health profession educational institutions (HPEIs), private foundations, and state and federal government agencies could increase the participation of URM students in health professions careers. The committee also suggested that HPEIs needed to develop a clear mission statement that supported the value of diversity in health education, and guided admission policies based on that mission. In addition, the committee argued that health profession training programs that sought to improve the quality and availability of diverse health professionals should be evaluated, and funds should be allocated to successful programs. Health profession educational institution accreditation bodies needed to develop explicit policies that articulated the value of diversity among health professionals, and monitor the progress of member institutions toward that goal. Finally, the committee suggested additional data collection was required to more thoroughly characterize URM participation in the health professions and in health profession education, and to increase broad stakeholders' understanding regarding steps that should be taken to enhance diversity among health professionals.

NA, . (2008). *Professional Women and Minorities— A Total Human Resources Data Compendium*. Washington DC: Commission of Professionals in Science and Technology.

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2-Null/No Effect ("diversity has no effect on outcome")

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Annotated Summary:

This source is the 17th in a series of publications, begun in the 1980s with a grant from the Ford Foundation to the Commission on Professionals in Science and Technology, Professional women and minorities: A total human resources data compendium. It contains 350 data tables and charts with current and historical data from over 200 sources. Six chapters cover the general population and pre-college education, enrollment in higher education, degrees earned in higher education, science and engineering employment (general, academic and federal), and international education and employment. The original purpose of the volume in the 1980s was to provide data to the human resources directors and equal employment opportunity (EEO) professionals at educational institutions and employers, so that they would be able to benchmark goals associated with EEO.

This 17th edition of Professional women and minorities shows that even with some minor gains, the whole human resources potential for science, technology, engineering and mathematics (STEM) in the United States is not being fully utilized. Women have made some impressive gains in various professional fields, yet women's progress in STEM fields has been uneven. Members of key U.S. minority groups—most notably African Americans, Hispanics, and American Indians (the under-represented minorities)—have barely gained any ground in moving into scientific and professional fields, both in education and in the workplace.

Campbell, P, Jolly, E, Hoey, L, & Perlman, L. (2002). Upping the Numbers: Using Research-Based Decision Making to Increase Diversity in the Quantitative Disciplines. *GE Foundation*.

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Annotated Summary:

Countless reports have been issued in recent years by education, business, and government identifying an urgent issue in education and the workforce: the underrepresentation of large segments of the U.S. population in quantitatively-based occupations—and the impact of this imbalance on industry and society. This report is among the first to gather data on what really works to increase underrepresented students' interest and success in these fields, and to compile specific recommendations based on that data. Recommendations for the Middle and High School Level included: (1) providing resources for continuing and institutionalizing programs that combine hands-on activities and the provision of role models through mentoring, internships, and career field trips; (2) making more advanced math, economics, and physical science courses available; (3) providing students with more hands-on/laboratory experiences in required quantitative and physical science courses; (4) raising the quality level of existing courses; and (5) making it possible for more students to take advanced courses. At the college level, the recommendations were: (1) focusing efforts to increase the numbers of women in these fields at the recruitment stage; (2) supporting the institutionalization of programs in the quantitative disciplines that are available to all and that serve the needs of minority students; (3) targeting Historically Black Colleges and Universities (HBCUs); (4) supporting undergraduate research programs in universities and internship programs in industry that promote meaningful research experiences for students of all backgrounds; and (5) supporting the development of yield-management tools, and recruitment strategies that successfully reach minority high school students.

Mitchell, T., & Fao, U. (1970). Diffusion of the effect of cultural training of the leader in the structure of heterocultural task groups. *Australian Journal of Psychology*, 21(1), 31-43.

32

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Annotated Summary:

In a heterocultural task group, the favourableness of the leader-to-member behaviour, as rated by an observer, is greater when the leader is trained in the interpersonal norms of the culture of another group member. The effect of training decreases systematically as the relation of variables to the leader-member interaction decreases. 16 Americans were trained in the Thai culture and 16 received control training. Each one of the 32 groups engaged in a construction task and was composed of an American, as leader, and 2 Far Eastern members, 1 being a Thai. Each participant and an observer rated the group effectiveness on 5 variables. The intercorrelation pattern among variables and raters is described. For each variable, the size of the mean difference between trained and control groups varied according to the position of the variable in the intercorrelation pattern.

Only a few leadership differences were found significant. It was found that culture-trained leaders took longer to complete tasks and made more errors. With regard to "mistakes" in the leader's interpersonal behavior as recorded by the Thai observers, a significant difference ($p = .05$) was found in favour of the culture-trained leaders; i.e., the culture-trained leaders made fewer mistakes.

Ruhe, J., & Eatman, J. (1977). Effects of Racial Composition on Small Work Groups. *Small Group Behavior*, 8(4), 479-489.

96

1-Positive ("diversity has a positive impact on outcome")

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Annotated Summary:

This article evaluated the effect of integration and segregation of Blacks and Whites in a small group setting in a work environment. Discriminant analysis suggested that while few behavioral and attitudinal differences exist between Blacks and Whites, integration is beneficial to Blacks and not detrimental to Whites. The results showed that Whites were not significantly affected if the work group was segregated or integrated. Blacks, on the other hand, appeared to be advantageously affected by the integrated racial group composition.

Watson, W., & Kumar, K. (1992). Differences in decision making regarding risk taking: A comparison of culturally diverse and culturally homogeneous task groups. *International Journal of Intercultural Relations*, 16(1), 53-65.

119

1-Positive ("diversity has a positive impact on outcome")

0

Annotated Summary:

This study examined the differences in the group decision-making of culturally diverse and culturally homogeneous groups, dealing with tasks in which alternatives consisted of a wide range of risk. One hundred and nineteen subjects were divided into 14 culturally diverse groups (having members of three different ethnic/cultural backgrounds), and 18 culturally homogeneous groups. Each group was presented with a series of decision problems that required making choices of action involving varying degrees of risk. Significant differences were noted between the decisions made by the two types of groups, indicating differences in their risk-taking propensities. A general rule, of diverse/conservative versus similar/more risky, emerged from the results. Investigation of the group process also indicated interaction behavior differences between culturally diverse and culturally homogeneous groups. Diverse groups had more problems with interaction behaviors that interfered with problem-solving, whereas homogeneous groups indicated more facilitating interaction behaviors. Discussion of interaction differences due to cultural diversity was offered. Implications of findings for effective management of culturally diverse groups were also given. Results indicated that decisions made by culturally diverse and culturally homogeneous groups differed significantly: Culturally diverse groups overall had made more conservative decisions than culturally homogeneous groups.

Copeland, L. (1988). Valuing Diversity, Part 1: Making the Most of Cultural Differences at the Workplace. *Personnel*, 65(6), 52-60.

125

1-Positive ("diversity has a positive impact on outcome")

0

Annotated Summary:

The author talked to administrators, educators, and professionals on their perceptions, experiences, value, and future of cultural diversity in the workplace. Results suggest most felt great progress in diversifying with minorities and women, but that it can be difficult to manage different cultures, ideas, and styles. The most successful companies have a diverse workforce; diversity provides different points of view, perspectives, and ideas, as well as makes the workplace more interesting and productive.

Cox, T. (1991). The Multicultural Organization. *Academy of Management Executive*, 5(2), 43-47.

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1-Positive ("diversity has a positive impact on outcome")

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Annotated Summary:

This article combined a literature review, anecdotal American organizational experiences, and Milton Gordon's Societal Integration Model, and thus developed a framework for creating multicultural organizations. Multicultural organizations were able to maximize benefits of diversity (creativity, innovation, decision-making, marketing success, and distribution of economic opportunity) while minimizing costs due to turnover, conflict, and communication breakdown. The author's multicultural model was characterized by pluralism, full integration of minority-culture members both formally and informally, absence of prejudice and discrimination, and low levels of inter-group conflict. The author provided recommendations to address each component, such as orientation,, education and mentoring programs, focus groups, bias reduction training, survey feedback, and conflict management training.

Cox, T, & Blake, S. (1991). Managing Cultural Diversity: Implications for Organizational Competitiveness. *Academy of Management Executive*, 5(3), 45-56.

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1-Positive ("diversity has a positive impact on outcome")

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Annotated Summary:

This article reviewed the literature and data pertaining to diversity and competitive advantage. Results indicated that increasing diversity, and effective management of heterogeneous staff, led to a competitive advantage for companies across six components: cost, resource acquisition, marketing, creativity, problem solving, and system flexibility. Moreover, the authors provided suggestions on how to transform traditional organizations into multicultural organizations, by addressing leadership, training, research, analysis and change of culture and human resource management systems, and follow-up.

Maznevski, M. (1994). Understanding Our Differences: Performance in Decision-Making Groups with Diverse Members. *Human Relations*, 47(5), 531-552.

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1-Positive ("diversity has a positive impact on outcome")

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Annotated Summary:

The purpose of this article was to develop a model to explain performance in decision-making in high diversity groups. The article began with a brief discussion of the nature and effects of diversity. It recounted previous research on group performance that claimed that diverse groups do not perform as well than homogeneous groups. This conclusion was challenged by closely examining a small group of studies, specifically researching the effects of diversity, and it is shown that diversity can enhance a group's performance if it is integrated. Communication was proposed as an integrating mechanism, and a theory of communication in terms of preconditions was described. This theory was then used to develop propositions concerning the relationships among diversity, integration, and performance in decision-making groups. Implications for research and practice were discussed.

Cady, SH, & Valentine, J. (1999). Team innovation and perceptions of consideration: What difference does diversity make? *Small Group Research*, 30(6), 730-50.

50

3-Negative ("diversity has negative effect on outcome")

0

Annotated Summary:

The data for this article was collected by way of four team-oriented technical contests, administered in a division of a high-tech, Fortune 500 company over a period of 8 months. The authors examined the following hypotheses: whether diversity improves quality and quantity of ideas produced by the team; and if diversity in teams will be negatively related to each team member's perceptions of teaming consideration. The independent variables in the study were the four types of diversity (race, sex, age, and function). The results revealed no significant relationships for quality of ideas generated. In addition, the results revealed that while gender diversity was negatively related to the quantity of ideas generated, racial heterogeneity in the teams increased the quantity of ideas. Finally, the results showed that as race and sex diversity increased, the team members' perceptions of teaming consideration decreased. The remaining two diversity dimensions (age and function) were not significant.

1079-1

Sample Size

Direction of Effect

Effect Size

Chatman, JA, & Flynn, FJ. (2001). The influence of demographic heterogeneity on the emergence and consequences of cooperative norms in work teams. *Academy of Management Journal*, 44(5), 956-74.

119

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Annotated Summary:

Drawing from social categorization theory, the authors found that greater demographic heterogeneity led to group norms emphasizing lower cooperation among student teams and officers from ten business units of a financial services firm. This effect faded over time. Perceptions of team norms among those more demographically different from their work group gradually changed, becoming more cooperative, as a function of contact with other members. Finally, cooperative norms mediated the relationship between group composition and work outcomes.

Horwitz, SK. (2005). The compositional impact of team diversity on performance: Theoretical consideration. *Human Resource Development Review*, 4(2), 219-45.

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Annotated Summary:

Team diversity is a dynamic and complex phenomenon, and managing such diversity is a critical organizational concern as labor pools become more heterogeneous and more emphasis is placed on teamwork. However, simply creating diverse teams will not make them more effective; rather, the success of teamwork is largely dependent on the right composition of individual attributes. The perspective shift from individual diversity attributes to compositional and relational structures at a team level is, thus, an important feature of teamwork analyzes organizations should pursue. Ultimately, the knowledge of various compositional effects of team diversity on performance can help organizations determine how to align diverse teams with their strategic goals and enhance overall organizational performance.

Mohammed, S, & Angell, LC. (2004). Surface- and deep-level diversity in workgroups: Examining the moderating effects of team orientation and team process on relationship conflict. *Journal of Organizational Behavior*, 25, 1015-39.

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1-Positive ("diversity has a positive impact on outcome")

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Annotated Summary:

The authors studied how team diversity affects functioning and performance. The purpose of this study was to explore the differential impact of surface-level diversity (gender, ethnicity), deep-level diversity (time urgency, extraversion), and two moderating variables (team orientation, team process) on relationship conflict over time. Hypotheses were tested by tracking 45 student project teams in a longitudinal design. Twenty-one of the teams were upper-level undergraduates and 24 of the teams were graduate business students (103 students of each level). All students were upper-level undergraduates of graduate business majors, all taking the same course on quality management. Results revealed that team orientation and team process moderated the diversity–conflict link. The first outcome was that team orientation helped to neutralize the negative effects of surface-level (gender) diversity on relationship conflict. Additionally, relationship conflict caused a perception of lower-quality performance by team members.

Richard, O, McMillan, A, Chadwick, K, & Dwyer, A. (2003). Employing an innovation strategy in racially diverse workforces: Effects on firm performance. *Group Organization Management*, 28(1), 107-26.

177

1-Positive ("diversity has a positive impact on outcome")

0

Annotated Summary:

The authors explored the impact of racial diversity on firm performance measured as the return on equity (ROE). A national sample of 177 banks was used to first test competing hypotheses supported by the resource-based view of the firm and social identity theory. The social identity theory posited positive and negative direct effects, respectively, of racial diversity on organizational performance. No support was found for either prediction. However, a contingency theory-based hypothesis was supported. A moderation effect indicated that racial diversity's association with performance was contingent on a firm's level of innovation. Specifically, racial diversity enhanced performance for banks pursuing an innovation strategy, whereas for banks low in innovation, performance declined. The results suggest that a racially heterogeneous workforce, in conjunction with an innovation-focused business strategy, may provide firms with a competitive advantage.

1107-1

Sample Size

Direction of Effect

Effect Size

Thomas, DA. (2013). Diversity as Strategy. *Harvard Business Review*, 82(9), 98-108.

50

1-Positive ("diversity has a positive impact on outcome")

0

Annotated Summary:

IBM created eight task forces, each focused on a different group such as Asians, gays and lesbians, and women. The goal of the initiative was to uncover and understand differences among the groups and find ways to appeal to a broader set of employees and customers. The author interviewed 50 employees involved with the task forces and leadership. The entire effort was designed to help the company develop deeper insights into its major markets and focus on talent.

Watson, WE, Kamalesh, K, & Michaelsen, LK. (1993). Cultural Diversity's Impact on Interaction Process and Performance: Comparing Homogeneous and Diverse Task Groups. *Academy of Management Journal*, 36(3), 590 - 602.

173

1-Positive ("diversity has a positive impact on outcome")

5

Annotated Summary:

The interaction process and performance of culturally homogeneous and culturally diverse groups were studied for 17 weeks. The 173 students in an upper-level principles of management business course were divided by 36 work groups. Seventeen of the groups were culturally homogeneous composed of 4 or 5 white students. The 19 culturally heterogeneous groups were composed of 1 white, 1 black, 1 Hispanic, 1 foreign national, and possibly one more foreign national or Hispanic students. Data were gathered on four group tasks performed at approximately one-month intervals. Each task consisted of completing a structured analysis of a case study that described situations prevalent in "real-life" companies. Evaluation of the case analyses was based on four predetermined task criteria: (1) the range of perspectives shown in evaluating the situation, (2) the number of potential or existing problems identified (problem identification), (3) generation of multiple alternatives (alternatives generated), and (4) the quality of the recommended solution (quality of solutions). Overall performance on the task was the average of the ratings on the four criteria. Over time, both types of group showed improvement on process and performance, and the between-group differences converged. The improvements in process and performance were more rapid for the culturally diverse groups. By week 17, there were no differences in process or overall performance, but the heterogeneous groups scored higher on two task measures (range of perspectives and alternatives generated).

Triana, M., Garcia, M. F., & Colella, A. (2010). Managing Diversity: How Organization Efforts to Support Diversity Moderate the Effects of Perceived Racial Discrimination on Affective Commitment. *Personnel Psychology*, 63(4), 817-843.

481

3-Negative ("diversity has negative effect on outcome")

0

Annotated Summary:

In this article, the authors conducted three different studies, with predominantly White-, Hispanic-, and Black-participants, respectively, to determine the extent to which organizational support for diversity can mitigate negative effects of perceived racial discrimination. General results found that perceived organizational efforts to support diversity can attenuate negative effects of perceived racial discrimination on affective commitment under certain circumstances. Additionally, perceived racial discrimination was negatively related to perceived organizational support for diversity and affective commitment but was positively related to turnover intent. Finally, the authors concluded that organizational support for diversity was positively related to affective commitment and negatively related to turnover intent. Results for specific studies included: high perceived organizational efforts to support diversity attenuated the negative effects of perceived high racial discrimination on affective commitment for Studies 1 and 2, while high perceived organizational efforts to support diversity were associated with a stronger negative relationship between perceived racial discrimination and affective commitment for Study 3.

Triana, M, & Garcia, MF. (2009). Valuing diversity: a group-value approach to understanding the importance of organizational efforts to support diversity. *Journal of Organizational Behavior*, 30(7), 941-962.

181

3-Negative ("diversity has negative effect on outcome")

0

Annotated Summary:

Using Leventhal's rules as well as the group-value model of procedural justice, the authors examined how the negative effects of perceived racial discrimination on procedural justice judgments can be attenuated by perceived organizational efforts to support diversity. They found that employees who believe some individuals in the workplace are discriminating against them on the basis of race tend to report lower levels of procedural justice from the organization. However, this negative relationship was attenuated when employees perceived that their organization was making efforts to support diversity. Results suggest that individuals' perceptions of organizational efforts to support diversity can help restore perceptions of procedural justice for employees who experience racial discrimination at work.

Johnson, N. L. (2008). Science of CI: Resources for Change. In *Collective Intelligence: Creating a Prosperous World at Peace*. Earth Intelligence Network.

0

1-Positive ("diversity has a positive impact on outcome")

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Annotated Summary:

In this chapter, Johnson explained his collective intelligence (CI) framework developed as a result of the Symbiotic Intelligence Project during which a group of researchers examined how individuals using the Internet for their own needs created a new problem solving capability – a symbiotic intelligence. Johnson argued that diversity was the essential requirement for CI performance. He suggested that as the complexity of problems increased, the collective performed better and was more resilient to change. Finally, Johnson indicated that to develop emergent CI, individuals must not only express their diversity, but also share a common worldview, developed by a greater understanding, openness, and acceptance of others. Emergent CI will benefit from global solutions found by individuals solving their own local problems, but where the emergent solution is beyond individual understanding.

Johnson, NL, & Watkins, JH. (2009). The Where-How of Leadership Emergence (WHOLE) Landscape: Charting Emergent Collective Leadership. *SSRN*, 2009(December), Retrieved from <http://ssrn.com/abstract=1516618>

0

1-Positive ("diversity has a positive impact on outcome")

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Annotated Summary:

In this article, the authors proposed a two-dimensional leadership landscape titled the Where –How Leadership Emergence (WHOLE) with one dimension exploring where leadership occurs (single versus collective or localized versus distributed) and the second dimension examining how leadership arises (predictable or based on the structure of the system and unpredictable or leadership that is opportunistic and/or emergent). The authors suggested that the newest frontier of leadership resources is the emergent collective leadership (ECL) that is present when leadership is distributed (occurs when collective is involved in making decisions) and dynamic or emergent. This type of leadership resource is especially important for discovery of innovation in challenging dynamic and complex environments. The authors suggested that ECL is best suited for complex problems that require collective approach to identify optimal solutions. In addition, the author listed general requirements for ECL to exist and be effective including diversity of problem solving approaches or experiences and agreement on the possible options and solutions.