Impact of Diversity Climate on Leadership Effectiveness in Higher Education

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Prior research has documented that diversity climate positively influences individual and organizational outcomes. However, there is void in current literature on how gender diversity influences subordinates' perception of a leader's effectiveness. In this paper, the researchers investigated how diversity climate affects the relationship between gender of leader and subordinate perceptions of a leader's effectiveness. To investigate this problem, a convenience sampling method was used to select a gender-diverse faculty members sample at a research university in the southern region of the United States. The researchers analyzed the data using exploratory factor analysis to tease out significant factors that underlie structure of the diversity climate and perceptions of a leaders' effectiveness scales. The data shows that diversity climate correlates with faculty's gender and perceptions of leadership effectiveness. That finding also revealed that diversity climate does affect individual, unit, and/or organizational outcomes. The researchers recommended that additional studies be conducted to further examine diversity climate impact on leadership effectiveness and organizational outcomes as organizations embrace diversity, inclusion and equity.

Keywords: diversity climate, ethics, gender, higher education, leadership effectiveness, management

INTRODUCTION

Organizational context plays an important role in the gender bias and leadership equation. The climate of diversity of an organization has been shown to influence attitudes and perceptions of employees towards the institution (Cox, 1994). Diversity climate has been defined as "the degree to which a firm advocates fair human resource policies and socially integrates underrepresented employees" (McKay, Avery, & Morris, 2008, p. 352). A strong pro-diversity climate is one in which the organization values and embraces employee differences (McKay et al., 2008).

The current labor force is more diverse than it was in the past – a trend that will persist into the future (Mor Barak et al., 1998; Population Reference Bureau, 2008) – and diversity climate has been described as a tool that organizations can use to benefit from a diverse workforce (Ehrhart, Schneider, & Macey, 2014; Schneider, Ehrhart, & Macey, 2013). A climate of diversity has been associated with enhanced

competitiveness (Cox, 1994), given that diversity improves an organization's flexibility, adaptability, and its ability to change (Cox, 1994; Groggins & Ryan, 2013). Organizations that are more open to diversity are also more likely to attract (Cox, 1994) and retain (Cox, 1994; Groggins & Ryan, 2013) the best employees. In a qualitative study conducted by Groggins and Ryan (2013), "openness to change, openness to others, [and] openness to error" (p. 264), as well as the "development of interpersonal competence" (p. 272) were cited as key aspects of organizations characterized by a strong diversity climate. Furthermore, Groggins and Ryan (2013) found that, surprisingly, a strong diversity culture could enhance group cohesiveness, contrary to other reports in the literature (Cox, 1994).

Research has linked diversity climate to individual and organizational outcomes. For example, diversity climate has been associated with higher levels of organizational commitment and identification (Gonzalez & Denisi, 2009); "satisfaction with manager, career satisfaction and career future satisfaction," (Hicks-Clarke & Iles, 2000, p. 341); job satisfaction (Hicks-Clarke & Iles, 2000); and customer satisfaction (McKay et al., 2011). Bottom-line results, such as increased return on investment (ROI) and productivity (Gonzalez & Denisi, 2009), sales per hour (McKay et al., 2008), and mean sales growth (McKay et al., 2009) have also been linked to diversity climate. Consequently, it has become increasingly important for organizations to manage diversity effectively in order to maximize the benefits that an increasingly diverse workforce entails (Cox, 1994; Mor Barak, Cherin, & Berkman, 1998).

Research has also uncovered positive organizational outcomes (Dwyer et al., 2003) and bottom-line implications for organizations that support a pro-diversity climate (McKay et al., 2008). Significant increases in sales per hour have been noted among African American store employees (McKay et al., 2008), as well as sales growth for store units with positive diversity climates (McKay, Avery and Morris, 2009). McKay, Avery, Liao and Morris (2011) similarly found that customer satisfaction was positively linked to a pro-diversity climate, and that the relationship between diversity climate and customer satisfaction was strengthened by increasing minority employee numbers. Dwyer et al. (2003) reported a surge in productivity for organizations that were gender-heterogeneous and growth-oriented (Dwyer et al., 2003), while Kossek and Zonia (1993) found that gender diversity was positively associated with attitudes toward diversity climate and perceptions of women's professional skills and abilities across members of different gender and racioethnic groups. Gonzalez and Denisi (2009) further noted decreased turnover intentions among female members of a heterogeneous workforce when a climate of diversity moderated the relationship (Gonzalez & DeNisi, 2009).

Academia also benefits from diverse climates. Maranto and Griffin (2011) found that, in academic departments with greater female representation, women felt less excluded. Likewise, in departments rated higher on procedural fairness and gender equity, both male and female faculty reported lower feelings of exclusion. These results were unexpected yet positive, given that the department's climate affected not only women's feelings of exclusion, but also men's. Thus, men can also benefit from climates that are perceived as fair. Overall, however, women still reported greater feelings of exclusion than men. Reducing such feelings becomes important, given that "in a profession in which informal collaboration and mentoring is directly instrumental to the primary measure of success – publications – women's exclusion, however unconscious or inadvertent, constitutes a powerful barrier to achievement" (Maranto & Griffin, 2011, p. 13).

Callister (2006) found that in STEM fields, affective climate (defined by "quality of relationships, psychological safety, pessimism or cynicism about organizational change and perceptions of isolation" (p. 368)) and instrumental climate (denoted as "access to information, access to resources, and assessment of the promotion and tenure process" (p. 368)) completely "mediate[d] the relationship between gender and both job satisfaction and intention to quit" (p. 371). Surprisingly, this held true for both men and women, but the effects were most marked for women. Callister's (2006) results support those of Maranto and Griffin (2011), which show that a diverse climate can impact both male and female faculty's job satisfaction and intention to quit. Given the evidence presented, the following hypotheses are proposed:

Hypothesis 1a: *Diversity climate will affect the relationship between gender of leader and subordinate perceptions of leader effectiveness such that negative perceptions of diversity climate will yield significantly lower perceptions of female leaders' effectiveness when compared to male leaders.*

Hypothesis 1b: *Diversity climate will affect the relationship between gender of leader and subordinate perceptions of leader effectiveness such that negative perceptions of diversity climate will yield significantly lower perceptions of female leadership effectiveness, and positive perceptions of diversity climate will yield significantly higher perceptions of female leadership effectiveness.*

METHODS

Population and Sample

The target population of this study was faculty of at least one academic year at a research university in the southern region of the United States. The accessible population was 320 faculty members at a research university in the southern United States. The researchers used a convenience sample to select the participating colleges within the institution. Two colleges representing a wide range of academic fields and encompassing both traditionally masculine and feminine domains agreed to partake in the study.

Measures

To achieve the objectives of this study the researchers chose to use an existing instrument to survey the participants in the study. The instrument comprised scales assessing perceptions of leadership effectiveness and diversity climate and demographic characteristics of the respondents.

Variables Measured by the Survey Instrument

Subordinate Perceptions of Leadership Effectiveness

The researchers in this study measured the subordinate perceptions of leadership effectiveness using only two of Rosser, Johnsrud and Heck's (2003) scales of effectiveness of leaders in higher education. Rosser et al.'s (2003) survey instrument comprised seven constructs: "vision and goal setting […], management of the unit […], interpersonal relationships […], communication skills […], research, professional, and community endeavors […], quality of the unit's education […], and support for institutional diversity […]"and 50 items total (p. 10). The internal consistency of the instrument (as measured by Cronbach's alpha > .90) was excellent, indicating strong reliability (Rosser et al., 2003).

The two of Rosser et al.'s (2003) subscales selected for this study were: "management of the unit and interpersonal relationships" (p. 10). The researchers selected these two subscales because they closely resemble agentic and communal traits reflected in Eagly's (1987) social role theory. For example, Eagly (1987) describes communal qualities (i.e. feminine traits) as reflecting "a concern with the welfare of other people" (p. 16) and agentic (i.e. masculine) attributes as indicators of self-confidence, self-efficacy, assertiveness, control and dominance (Eagly, 1987).

The researchers in the study changed the response choices of the original instrument from a 5-point Likert-type scale to a 7-point Likert-type scale ranging from strongly disagree (1) to strongly agree (7) to increase the breath of response options available to the respondents. The researchers also modified some of the original items – albeit minimally – to enhance clarity. The changes were carefully made to not alter the underlying meaning of the original items. For instance, the item #6 was changed from "effective problem solver" to "is an effective problem solver." Similar change was made to items #15 and #17, where the word "is" was added at the beginning of each phrase. The items under each scale are presented below:

Management of the Unit

1. Ensures that fair administrative procedures are followed
2. Exercises fair and reasonable judgment in the allocation of resources
3. Manages change constructively
4. Delegates work effectively

5. Handles administrative tasks in a timely manner
6. Is an effective problem-solver
7. Demonstrates knowledge of departments and programs within the unit
8. Maintains an effective and efficient staff Interpersonal Relationships:

Interpersonal Relationships

9. Demonstrates understanding of the needs and concerns of unit members
10. Treats individuals fairly and with respect
11. Maintains positive and productive relationships within the unit
12. Maintains positive and productive relationships external to the unit
13. Demonstrates awareness of the quality of professional work of unit members
14. Demonstrates sensitivity to career and mentoring needs of unit members
15. Is accessible to faculty and staff within the unit
16. Demonstrates understanding of the needs and concerns of students
17. Is accessible to students.

Perceptions of Diversity Climate

The researchers in this study also selected an existing survey instrument to measure the diversity climate of the institution in which the study was conducted. Mor Barak et al.'s (1998) instrument measured adequately the variable of interest. This research instrument comprised two overarching dimensions – organizational and personal – of 16 items total. The organizational dimension includes "individuals' views of management's policies and procedures specifically affecting minorities and women" (Mor Barak et al., 1998, p. 85) and the personal dimension includes "individuals' views and prejudices toward people who are different from themselves" (Mor Barak et al., 1998, p. 85). The organizational dimension comprised two subscales – organizational fairness and organizational inclusion – and the personal dimension comprised two subscales – personal diversity value and personal comfort.

For the purpose of this study, only the two subscales of the organizational dimension were used. The subscales comprised 10 items total. The researchers excluded the personal dimension from the study because its items address personal beliefs and values on diversity rather than perceptions of actual organizational procedures, policies and practices. For example, under the personal diversity value factor, items such as "I think that diverse viewpoints add value" and "I believe diversity is a strategic business issue" reflect personal ideas and beliefs about diversity, rather than an assessment of group/unit and/or organizational diversity climate.

Modification to the response categories and items was made in the following manner. The response options on the original Mor Barak et al. (1998) 6-point Likert-type scale (ranging from strongly agree to strongly disagree) with an additional "can't answer" option were adapted to match those of the perceptions of leader effectiveness measures. Response options thus ranged from strongly disagree (1) to strongly agree (7). The items were modified to reflect an academic environment, following the template proposed by Buttner, Lowe, and Billings Harris (2012). Buttner et al. (2012) were interested in researching how perceptions of "diversity climate and fulfillment of diversity promises" (p. 248) amongst professionals of color affected turnover and organizational commitment. They surveyed faculty members at business schools who had joined the PhD Project, a national networking association for employees of color. Given the sample of the study, Buttner et al. (2012) modified the original Mor Barak et al. (1998) items under the organizational dimension scale – the same that was utilized for the present study – to more accurately reflect the academic setting of the study.

For example, Mor Barak et al.'s (1998) item "managers here make layoff decisions fairly, regardless of factors such as employees' race, sex, age, or social background" was modified by Buttner et al. (2012) to read: "dept. chairs here make promotion and tenure decisions fairly, regardless of such factors as the faculty member's race, sex, age, or social background". However, the focus of Buttner et al.'s (2012) items, like those of Mor Barak et al. (1998), remained on the leader/individual in charge of the department, rather

than on the unit/department itself. Thus, the present study made additional modifications to the questions to reflect the department as the unit of interest.

Diversity climate is a multilevel construct that can be assessed at individual, group/unit, and/or organizational levels (Chan, 1998; Dickson, Resick, & Hanges, 2006; Ehrhart et al., 2014), with unit and/or organizational levels being the most selected (Dickson et al., 2006; Ehrhart et al., 2014). Therefore, the wording of the items was adapted to reflect the diversity climate construct at the department level. For example, item #4 was modified to read "in my academic unit promotion and tenure decisions are made fairly, regardless of factors such as the faculty member's race, sex, age, sexual orientation or social background". The department (i.e. unit) level was chosen to evaluate diversity climate based on recommendations provided in the literature (Borrevik, 1972; Moran & Volkwein, 1987). Borrevik (1972), for example, argues that in higher education, academic departments are the key component of organizational structures and should be the focus of investigations of organizational climate in higher education.

Lastly, the phrase "sexual orientation" was added to questions one through four, to reflect a more modern perspective on plurality and to be more inclusive of and sensitive to diverse groups in the workforce. Table 2 presents the subscales created by Mor Barak et al. (1998), the modifications made by Buttner et al. (2012), and the items used for this investigation for comparison purposes.

The reliability coefficients obtained by Buttner et al. (2012) for the organizational fairness and organizational inclusion subscales were .92 and .64, respectively, and an overall Cronbach's alpha of .89 for all 10 items, combined. Given that diversity climate can be measured at either the individual, group/unit, or organizational levels, it is also important to specify the unit of measurement utilized for this investigation. In diversity climate research, responses can be either aggregated to the unit/group or organizational level, or can be left at the individual level (i.e. not aggregated; Ehrhart et al. 2014). A hotly contended topic, arguments may be found both in favor and against the aggregation of diversity climate data. For the present study, data was kept at the individual level.

Often known as psychological diversity climate, diversity climate measured at the individual level reflects participants' perceptions of diversity climate – that is, how individuals themselves perceive fairness, equal opportunity and inclusion policies, procedures and practices – within their departments, units, and/or organizations (McKay et al., 2009; McKay & Avery, 2015). Instruments and scales meant to measure diversity climate, such as the one used for this investigation, seek participants' perceptions of diversity climate at the "collective" (i.e. unit/department and organizational levels rather than the individual) level. Consequently, arguments have been made in favor of aggregating the data to the unit/department or organizational levels rather than letting it rest at the individual level. Ehrhart et al. (2014), for example, argued that diversity climate is inherently an aggregate construct given that it resides in the shared perspectives and the meaning derived from those shared perspectives of diversity climate within their workplace. Consequently, the aggregation of data, in their view, should be the path to follow when conducting diversity climate research.

Nonetheless, persuasive arguments have also been made supporting the analysis of diversity climate data at the individual level. The most important element in favor of non-aggregation is that diversity climate, despite its focus on the unit/department and/or organizational levels, is first and foremost an individual sense-making (i.e. cognitive) construct (James, Joyce, & Slocum, 1988). In other words, employees make individual or personal appraisals of their environment which they may or may not share with others, but which are nevertheless individual at its core. As James et al. (1988) eloquently states: "attributing meaning to environmental stimuli is a product of cognitive information processing, and it is individuals, and not organizations, that cognize. The basic unit of theory for meaning is the individual" (p. 130). The present research adheres to James et al.'s (1988) perspective, and thus maintains diversity climate data at the individual level for analysis purposes.

Demographic Variables

Gender, age, race, ethnicity, tenure status and the college the faculty member belongs to comprise the six demographic variables that were included in the survey. Of special importance is gender (of participant),

given the hypothesized relationship between gender of subordinate, gender of leader, and subordinate perceptions of leader effectiveness.

Data Collection

The faculty members in each department of the participating colleges were contacted directly via listservs. However, given the potentially sensitive nature of the study, the participants were not initially informed of the full extent and nature of the investigation. Outright mentioning of gender bias may prime individuals to answer in socially desirable ways. As Walker et al. (2013) explain, gender discrimination is no longer acceptable in many contemporary societies, and individuals often feel pressured to mitigate expressions of bias and prejudice and underreport biased perceptions. Openly describing the study's investigation of prejudicial attitudes towards female leaders may thus have led to skewed results. Hence, the study was instead presented to participants as an investigation of perceptions of leader effectiveness and the influence of diversity climate on this relationship when leaders commit mistakes.

The survey was then sent through Qualtrics to a total of 320 faculty members – the entire faculty body for each college – with 190 belonging to one college and 130 to the other. Ninety-eight individuals replied to the survey in some capacity. However, upon further inspection, 15 cases had to be deleted for the following reasons: the individual did not provide demographic data (n = 1); reported what appeared to be false demographic data (n = 1); did not consent to participate in the study (n = 2); agreed to participate by selecting "yes" on the consent form but did not complete any of the questionnaire items (n = 7); or only completed the diversity climate scale (n = 4). The 83 remaining cases were utilized for analysis purposes, yielding a 25.9% response rate. The final sample was comprised of 44 males (41%) and 39 females (39%), and was mostly White (88%), non-Hispanic (92.8%), and between the ages of 31 and 50 (55.4%). Most respondents were full professors (33.7%), followed by assistant professors (28.9%) and associate professors (20.5%), worked full-time (97.6%), and had been at the university for over 15 years (41.0%). Additional demographic information is presented in Table 1.

TABLE 1
DEMOGRAPHIC INFORMATION

Variable	Levels	Frequency	%
Gender	Male	49	59
	Female	34	41
Age			
	21-30	4	4.8
	31-40	23	27.7
	41-50	23	27.7
	51-60	14	16.9
	61-70	18	21.7
	71-80	1	1.2
Race	White	73	88
	Black or African American	1	1.2
	Asian	6	7.2
	Other	2	2.4
	Missing	1	1.2
Ethnicity	Non-Hispanic	77	92.8
	Hispanic	1	1.2
	Missing	5	6
Faculty position			
	Full Professor	28	33.7
	Associate Professor	17	20.5

	Assistant Professor	24	28.9
	Adjunct Professor	4	4.8
	Instructor	9	10.8
	Missing	1	1.2
Part or Full Time	Full-Time	81	97.6
	Part-Time	2	2.4
Years of Service			
	Less than 1	0	0
	1-5	29	34.9
	6-10	8	9.6
	11-15	12	14.5
	More than 15	34	41

Data Analysis

Hypotheses 1a and 1b

Hierarchical multiple regression (HMR) was the statistical method selected to test hypotheses 1a and 1b. HMR involves entering the predictive variables in a series of pre-determined blocks, "with each independent variable being assessed in terms of what it adds to the prediction of the dependent variable after the previous variables have been controlled for" (Pallant, 2010, p. 149). Given that H1a and H1b are hypothesizing whether diversity climate influences the relationship between gender of leader and subordinate perceptions of leader effectiveness, HRM was deemed an appropriate analytical strategy to use.

Hypothesis 1a predicted that diversity climate would affect the relationship between gender of leader and subordinate perceptions of leader effectiveness such that negative perceptions of diversity climate would yield significantly lower perceptions of female leaders' effectiveness when compared to male leaders. Meanwhile hypothesis 1b stated that diversity climate would affect the relationship between gender of leader and subordinate perceptions of leader effectiveness such that negative perceptions of diversity climate would yield significantly lower perceptions of female leadership effectiveness, and positive perceptions of diversity climate would yield significantly higher perceptions of female leadership effectiveness.

To determine whether an inacdfrteraction indeed existed between diversity climate and gender of leader, as outlined in H1a and H1b, gender of leader and diversity climate were added as predictors to the regression equation, in addition to an interaction term between gender of leader and diversity climate. Each variable was added to the model in the following order: gender of leader (block 1), diversity climate (block 2), and gender of leader x diversity climate (block 3). This order was selected based upon recommendations in the literature. According to Field (2009), the variable(s) to be inserted first are those which are "known predictors" (p. 212) from previous research; in other words, predictor variables that have already been found to be correlated with the criterion variable. Being that gender of leader has been previously shown to be related to perceptions of leader effectiveness (e.g. Goldberg, 1968), gender of leader was entered first into the equation as part of block 1. The exploratory variable, or the variable that is being newly tested, should then be added second (Field, 2009). Consequently, diversity climate, which was predicted would influence the relationship between gender of leader and perceptions of leader effectiveness, was placed in block 2. Finally, the interaction term has been traditionally included last (Burrill, 1997), and thus gender of leader diversity climate was selected to go in block 3.

A statistically significant ($p < .05$) interaction term would indicate that diversity climate does indeed moderate the relationship between gender of leader and subordinate perceptions of leader effectiveness. In other words, the interaction must add significant variance to the model, thus strengthening the model by adding greater predictive value to it. Significance of the model with only gender of leader, as well as significance of the model when diversity climate is added were also examined to determine whether, independently, they contributed a significant degree of variance to the model. In case of a statistically significant interaction, the variables would also be plotted to determine the nature of the interaction and to either confirm or reject H1a and H1b.

Exploratory Factor Analysis

An exploratory factor analysis (EFA) was run to determine the underlying structure of the items for both the diversity climate scale and the perceptions of leader effectiveness scale, and the findings were compared to the structure originally found in Mor Barak et al. (1998) and Rosser et al. (2003), respectively. Although the sample size (n = 83) was somewhat concerning, according to Hair et al. (2010) the absolute minimum sample size required for an EFA is 50 (n = 50), which this sample clearly met. Furthermore, a minimum ratio of 1:5 observations per variable (although a 1:10 ratio is preferable) is also desirable (Hair et al., 2010). With 10 items (i.e. variables) in the diversity climate scale, the 1:5 ratio was fulfilled. For the perceptions of leader effectiveness scale, nonetheless, to achieve a 1:5 ratio 85 observations would be required, since 17 items (i.e. variables) were to be analyzed. However, because a sample of 83 was just barely shy of the 85 mark, proceeding with the EFA was deemed reasonable.

The assumptions for factor analysis for each of the scales (i.e. diversity climate and perceptions of leader effectiveness) were tested, including factorability, which is the assumption that there is sufficient intercorrelation among variables to detect an underlying structure (Hair et al., 2010). To do so, examination of the following was undergone: correlations between items (with most correlations surpassing the .3 mark being preferred; Hair et al., 2010); measures of sampling adequacy (MSA) (with .5 being the minimum cutoff necessary to proceed with the EFA; Hair et al, 2010); the Kaiser-Meyer-Olkin (KMO) test (with measures above .8 considered "meritorious" and above .9 "marvelous"; Kaiser, 1974); and Bartlett's test of sphericity (with significance at the $p < .05$ noting the existence of correlations between variables).

Direct oblimin rotation, an oblique rotation, was selected for the EFA given that it is best suited for "real life" problems where a certain amount of correlation is expected to exist (Hair et al., 2010). Orthogonal rotations are usually preferred for data reduction, which was not the purpose of the present study (Hair et al., 2010). Principal axis factoring was chosen as the extraction method. According to Hair et al. (2010), .3 is considered the minimum acceptable cutoff for retaining items, yet items loading at or above .5 reflect practical significance. Furthermore, the smaller the sample size, the larger the cutoff should generally be (Hair et al., 2010). A cutoff of .5 was thus deemed appropriate to interpret the results of the EFA. Lastly, percent variance explained by the items in the EFA and reliability estimates were also calculated, with values at or above 60% for the former (Hair et al., 2010) and .7 for the latter (Tabachnick & Fidell, 2013) being preferred.

RESULTS

Exploratory Factor Analysis

EFA for Diversity Climate Scale

An EFA for the diversity climate scale, comprised of items 1 through 10 in the survey, was conducted, and the assumptions were tested prior to running the analysis. In terms of factorability, which is the assumption that there is sufficient intercorrelation among variables to detect an underlying structure (Hair et al., 2010), only one correlation – that between items 5 and 10 – was not significant ($r = .135$, $p = .112$). Given that these two items were expected to load on different factors, the lack of a significant correlation for the two items was not particularly concerning. Most correlations between items surpassed $r = .3$, the cutoff recommended by Hair et al. (2010), supporting the adequacy of the data for EFA.

Additional measures of factorability served to confirm the suitability of factor analysis. Measures of Sampling Adequacy were all above .8, except for a .797 value, which was nonetheless deemed satisfactory; the Kaiser-Meyer-Olkin (KMO) test yielded a .861 result, which is considered "meritorious" (Kaiser, 1974); and Bartlett's test of sphericity was significant at the $p < .000$ level of significance.

The EFA for the diversity climate scale was run using direct oblimin as the rotation method and principal axis factoring as the extraction method. The results are presented in Table 2.

TABLE 2
EXPLORATORY FACTOR ANALYSIS FOR DIVERSITY CLIMATE SCALE

	Factor	
Item	1	2
Q1	0.029	0.576
Q2	0.695	0.061
Q3	0.783	0.119
Q4	0.819	0.098
Q5	0.798	-0.138
Q6	0.64	0.187
Q7	0.075	0.569
Q8	0.056	0.458
Q9	0.183	0.574
Q10	-0.110	0.705

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.
a. Rotation converged in 6 iterations.

Following Hair et al.'s (2010) recommendations, items factoring above .5 were retained, while those loading below .5 were removed. In Mor Barak et al.'s (1998) original scale, items 1-6 comprised one subscale (organizational fairness), and items 7-10 constituted another subscale (organizational inclusion). As can be noted from Table 2, most items loaded on either of the two factors as expected, except for items 1 and 8. Item 1 loaded most strongly on factor 2 (i.e., the organizational inclusion subscale), but was kept for further analysis given its appropriate loading of .576. Item 8 did not meet the .5 threshold and was thus eliminated from the dataset.

Once item 8 was removed, the amount of variance explained by the scales reached 64.320%, surpassing the 60% mark suggested by Hair et al. (2010). Reliability estimates were also adequate, with a Cronbach's alpha level of .872 for the entire scale (without item 8), .891 for the organizational fairness subscale (items 2, 3, 4, 5 and 6), and .725 for the organizational inclusion subscale (items 1, 7, 9, and 10).

EFA for Perceptions of Leader Effectiveness Scale

Items 11 through 27 comprised the perceptions of leader effectiveness scale, with items 11 to 18 measuring management of unit, and 19 to 27 interpersonal relationships. To determine whether these items factored as expected (i.e., following Rosser et al.'s (2003) findings) an EFA was conducted. Factorability of the data was established by inspecting the correlation matrix, MSA values, the KMO test, and Bartlett's test of sphericity. Most correlations surpassed the $r = .3$ mark, and all were statistically significant, while MSA measures were all at or above .812. The value for KMO was .916 and Bartlett's test of sphericity was significant at the $p < .000$ value. The data was therefore deemed suitable for exploratory factor analysis.

Direct oblimin rotation and principal axis factoring were selected to run the factor analysis. Table 3 summarizes the findings.

TABLE 3
EXPLORATORY FACTOR ANALYSIS FOR PERCEPTIONS OF LEADER EFFECTIVENESS SCALES

	Factor		
Item	1	2	3
Q25	0.966	-0.034	0.015
Q19	0.96	-0.091	0.1
Q23	0.882	-0.055	0.109
Q26	0.867	0.031	-0.051
Q24	0.825	0.151	-0.029
Q27	0.81	0.074	-0.182
Q20	0.766	0.159	0.045
Q21	0.728	0.099	0.205
Q12	0.111	0.76	0.008
Q11	0.025	0.755	-0.156
Q15	-0.137	0.722	0.311
Q14	0.241	0.666	0.02
Q13	0.307	0.649	-0.047
Q16	-0.039	0.597	0.416
Q17	0.208	0.096	0.643
Q18	0.49	0.046	0.508
Q22	0.095	0.329	0.343

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.
a. Rotation converged in 17 iterations.

The results of the EFA for the perceptions of leader effectiveness items show three factor loadings, rather than the two which were originally expected based on the findings by Rosser et al. (2003). Furthermore, item 22 did not meet the .5 cutoff proposed by Hair et al. (2010) and was removed. Several items showed cross-loadings, meaning that they loaded considerably on more than one factor. For the purposes of this study, items loading on a second factor at Hair et al.'s (2010) minimum acceptable .3 threshold were considered cross-loadings. Under this criterion, items 13, 16, and 18 showed significant loadings on more than one factor and were eliminated. Despite loading adequately on the third factor, item 17 also had to be removed given that after the deletion of several items it was the only one remaining on the third factor. The prevailing items were divided into the following two subscales: management of unit (items 11, 12, 14 and 15) and interpersonal relationships (items 19, 20, 21, 23, 24, 25, 26 and 27).

Cronbach's alpha for the two combined subscales after the deletion of items 13, 16, 17, 18, and 22 was .952, and reliability estimates for the management of unit subscale and the interpersonal relationships subscale was .852 and .967, respectively. The remaining twelve items explained 78.113% of the variance, yielding satisfactory results.

Climate Diversity

Examining the relationship between among the variables of interest, the data indicated that diversity climate was significantly correlated to gender of participant (r = .308, p < .01) and perceptions of leader effectiveness (r = .334, p < .01). In addition, the t-test was not significant at t (76) = -1.657, p = .102, indicating that there were no statistically significant differences in perceptions of leader effectiveness when the leader was male (M = 3.47, SD = 1.39) or female (M = 3.02, SD = 1.04).

Testing Hypotheses 1a and 1b

Hypothesis 1a predicted that negative perceptions of diversity climate would yield significantly lower perceptions of female leaders' effectiveness when compared to male leaders. Hypothesis 1b expressed that negative perceptions of diversity climate would yield significantly lower perceptions of female leadership effectiveness, and positive perceptions of diversity climate would yield significantly higher perceptions of female leadership effectiveness. To confirm H1a and H1b, a hierarchical multiple regression (HMR) was conducted.

The assumptions of multicollinearity, linearity, normality and homoscedasticity were tested to determine the suitability of the data for HMR. Although multicollinearity between gender of leader and diversity climate was not a problem given their non-significant correlation (r = .159, p = .081), the relationship between the interaction term (gender of leader x diversity climate) and gender of leader (r = .957, p < .000) posed a multicollinearity problem, particularly as the value closely approached r = 1.00. A variance inflation factor (VIF) of 26.378 for the interaction term and of 23.433 for the gender of leader variable when the interaction term was added to the model revealed a similar problem with multicollinearity.

Multicollinearity is a common problem resulting from the creation of interaction terms between predictor variables in multiple regression. Tabachnick and Fidell (2013) recommend remedying the multicollinearity issue by centering one or more of the problematic variables. Given that diversity climate was a continuous variable, diversity climate was centered, and a new product term featuring gender of leader and the centered diversity climate variable was created. This effectively solved the multicollinearity issue, as there were no longer significant correlations between any of the three independent variables (i.e., gender of leader, centered diversity climate, and the interaction term), and tolerance and VIF values fell within acceptable margins (greater than .01 for tolerance, and less than 10 for VIF).

The assumption of linearity was somewhat problematic. The centered diversity climate variable and perceptions of leader effectiveness correlation was significant (r = -.334, p < .000), as well as the correlation between the interaction term and perceptions of leader effectiveness (r = -2.33, p = .019). The relationship between gender of leader and perceptions of leader effectiveness, nevertheless, was not significant (r = .181, p = .081). Examination of the residuals scatterplot showed a slight linear trend, with a few points centering around the horizontal line. Per Tabachnick and Fidell (2013), violations of the assumption of linearity for the relationship between one of the independent variables and the dependent variable are not catastrophic but may weaken the results of the HMR (Tabachnick & Fidell, 2013). Interpretation of the findings when gender of leader is added to the model must therefore be approached with caution. Lastly, the assumptions of normality of residuals and homoscedasticity were tested by investigating the normal P-P plots and scatterplot for residuals, respectively, and both were met.

The hierarchical multiple regression was conducted by introducing gender of leader in the first block, the centered diversity climate variable in the se cond block, and the interaction term between gender of leader and centered diversity climate in the third block. The results obtained are presented in Tables 4 and 5.

TABLE 4
R AND R CHANGE FOR HYPOTHESES 1A AND 1B

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	Change Statistics df1	df2	Sig. F Change
1	.181a	0.033	0.02	1.24187	0.033	2.61	1	77	0.11
2	.358b	0.128	0.105	1.18678	0.095	8.315	1	76	0.005
3	.359c	0.129	0.094	1.19439	0.000	0.034	1	75	0.855

a. Predictors: (Constant), Gender of Leader
b. Predictors: (Constant), Gender of Leader, Centered Diversity Climate
c. Predictors: (Constant), Gender of Leader, Centered Diversity Climate, Gender of Leader * Centered Diversity Climate
d. Dependent Variable: Perceptions of Leader Effectiveness

TABLE 5
ANOVA FOR HYPOTHESES 1A AND 1B

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4.026	1	4.026	2.61	.110b
	Residual	118.753	77	1.542		
	Total	122.778	78			
2	Regression	15.737	2	7.869	5.587	.005c
	Residual	107.041	76		1.408	
	Total	122.778	78			
3	Regression	15.785	3	5.262	3.688	.016d
	Residual	106.993	75		1.427	
	Total	122.778			78	

a. Dependent Variable: Perceptions of Leader Effectiveness
b. Predictors: (Constant), Gender of Leader
c. Predictors: (Constant), Gender of Leader, Centered Diversity Climate
d. Predictors: (Constant), Gender of Leader, Centered Diversity Climate, Gender of Leader * Centered Diversity Climate

For model 1, comprised of gender of leader as the sole independent variable, an R2 of .033 and an F (1, 77) = 2.61, p = .110 for the overall model revealed no significant variance added to the model by gender of leader. In other words, gender of leader (M = .54, SD = .501) did not help predict perceptions of leader effectiveness. When centered diversity climate (M = .000, SD = 1.11) was added to the model, the ANOVA reflected a significant statistical result (F (1, 76) = 5.587, p = .005). R2 change was also significant (F (1, 76) = 8.315, p = .005), noting that when the centered diversity climate variable was added to the model, the R2 of the model was meaningfully improved, from .033 to .128. Including the centered diversity climate variable in the model increased the variance explained by 9.5%. Although the R2 change reflected a rather small variance, centered diversity climate did appear to hold predictive value over subordinate perceptions of leader effectiveness.

Adding the interaction term (M = -.088, SD = .821) to the model did not result in a significant improvement in variance explained. Despite the ANOVA for model 3 being statistically significant (F (1, 75) = 3.688, p = .016), the change in R2 from model 2 to model 3 was not (F (1, 75) = .034, p = .855). The significance of the model was most likely due to the presence of the centered diversity climate variable, rather than the addition of the interaction term. Diversity climate therefore did not moderate the relationship between gender of leader and subordinate perceptions of leader effectiveness, and changes in the ratings of

diversity climate (i.e., lower or higher scores) did not affect perceptions of leader effectiveness based on the gender of the leader. H1a and H1b were hence not confirmed.

CONCLUSION

An exploratory factor analysis was conducted to determine the underlying structure of the diversity climate and perceptions of leader effectiveness scales. After items were deleted based on the results, coefficients of reliability and percent variance explained revealed a strong set of scales. Non-significant statistical results for independent samples t-tests failed to confirm either H1a or H1b. A hierarchical multiple regression used to test H1a and H1b did not obtain significant results for the interaction term, thus the hypotheses could not be proven.

IMPLICATIONS

Even though the influence was small (an R2 increase of 9.5%), the regression model was significantly improved ($p < .05$) when diversity climate was added to the equation, thus supporting findings from previous studies indicating that diversity climate does affect individual, unit, and/or organizational outcomes. The findings further reiterate the importance of diversity climate in organizations and contribute to the literature through the affirmation that diversity climate affects how subordinates rate leader performance. As diversity climate increased, ratings of leadership effectiveness also increased, despite leaders committing errors. Positive diversity climate therefore appears to improve perceptions of leader effectiveness, even under less-than desirable conditions.

A possible explanation for the significant relationship found between diversity climate and perceptions of leader effectiveness was be provided by McKay et al. (2008). When employees consider diversity climate to be strong within their units and/or organization, they are more likely to feel valued, accepted and appreciated, thus enhancing their identification with the organization (McKay et al., 2008). This increased identification, in turn, can lead to a more positive appraisal of the leader. Cox (1994) similarly theorized that by addressing factors such as acculturation and integration, strong climates of diversity can influence employees' feelings toward the unit and/or organization. Significant findings in the data may have thus resulted from positive perceptions of diversity climate which, in turn, led employees' (i.e. study participants') to view leaders in a more favorable light.

A significant regression equation when diversity climate was added as a predictor of perceptions of leader effectiveness also supports the importance of diversity climate in organizational units such as departments. Leaders wishing to improve how subordinates view them, for example, may place a greater effort on enhancing diversity climate within their units. Likewise, organizations wanting to capitalize on the positive effects of diversity climate can focus on devising strategies and policies that foment a climate of diversity amongst their personnel.

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