A Meta-Analysis of the Relationship between Team Demographic Diversity and Team Performance

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A Meta-Analysis of the Relationship between Team Demographic Diversity and Team Performance

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Abstract

Over the past decades, team demographic diversity has become a topic of considerable interest to industrial and organizational psychology scholars and organizational managers. However, there is little consistent evidence regarding the relations between team demographic diversity and team performance. There are at least two potential reasons to explain these inconsistencies. First, there are different forms of team demographic diversity and the specific type of diversity should have different effects on team performance. For example, team demographic diversity can be categorized as separation, variety and disparity based on the statistical distribution of team members' characteristics. Second, past researchers suggest considering contextual issues in team demographic diversity research. Rather than test the direct relationship between team demographic diversity and team performance, they have pointed out that contextual factors (e.g., cultural context) should play an important moderating role in the relationship between team demographic diversity and team performance.

In order to explain the inconsistencies in past research examining the link between team demographic diversity and team performance, we conducted a meta-analysis to examine the effects of different types of team demographic diversity on team performance. Our meta-analysis was based on 345 effect sizes from 137 Eastern and Western empirical studies with 79,639 teams. Each author independently coded the data and resolved discrepancies through discussion. In our coding system, we coded diversity as separation, variety, or disparity based on the measures of diversity used in each empirical paper (Harrison & Klein, 2007). Further, we collected contextual data to examine the potential moderating effects of contextual factors, such as performance types, cultural context and team types.

Results of main effects showed that team demographic variety had significantly positive effects on team performance, whereas team demographic separation and disparity were unrelated to team performance. Further, moderation analyses showed that the relations between team separation, variety, disparity and team performance were moderated by performance types, cultural context and team types. Specifically, considering performance type as a moderator, variety and disparity were more positively correlated with innovation performance compared to general task performance. With respect to cultural context, team demographic variety in eastern countries was more positively correlated with team performance compared to variety in western countries, whereas team demographic disparity in western countries was more negatively correlated with team performance compared to disparity in eastern countries. Regarding team types, team demographic variety was more positively correlated with performance in top management teams (TMTs) and research and development (R&D) teams compared to general work teams.

Our results showed that different demographic diversity had distinct effects on team performance, depending on the specific diversity type and context (e.g., performance types, culture and team types). However, many researchers rarely distinguish between different types of demographic diversity. Thus,

we suggest that future studies should pay more attention on this issue by specifying the demographic diversity types. Further, teams in Eastern countries should increase diversity as variety to improve their performance, whereas teams in Western countries should not only pay attention to team demographic variety, but also need to decrease team demographic disparity to avoid its negative effects on team performance. Overall, our findings have specific implications for companies to improve their performance through team demographic diversity management.

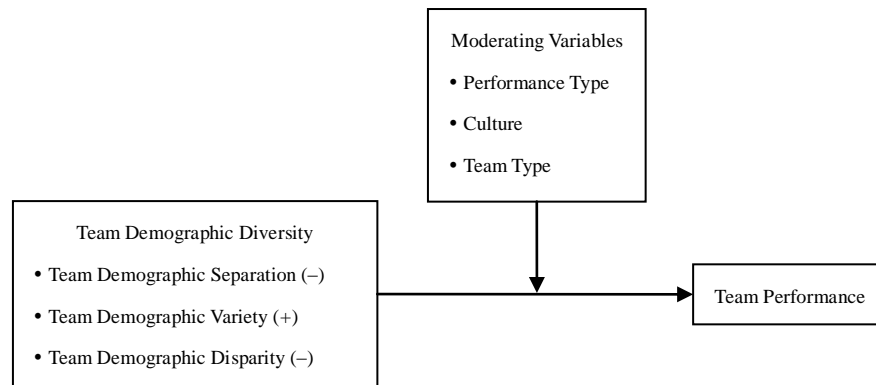**Keywords**   team diversity; separation; variety; disparity; performance

Figure 1 Research Model

Notes: "−" denotes negative correlation, "+" denotes positive correlation.

Table 2 The effects of team demographic separation, variety and disparity on team performance

Variables	k	N	r	ρ	95% C.I.	Q_W
Team demographic separation	33	2619	−0.04	−0.04	[−0.11, 0.04]	99.18***
Team demographic variety	190	48268	0.06	0.07***	[0.04, 0.09]	1087.05***
Team demographic disparity	122	113113	0.00	0.00	[−0.02, 0.02]	592.67***

Notes: ***$p < 0.001$; k indicates the number of effect sizes; N is the total number of teams; effect size r is sample size weighted mean effect size uncorrected for unreliability; effect size ρ is sample size weighted mean effect size corrected for unreliability; 95% C.I. indicates 95% of confidence interval of ρ; Q_W is the effect size heterogeneity statistic indicating the possibility of moderators.

Table 3   The moderating role of performance type on the relations between team demographic diversity and team performance

Variables	Performance type	k	N	r	ρ	95% C.I.	Q_W	Q_B
Team demographic separation	Innovation performance	9	595	−0.06	−0.06	[−0.21, 0.08]	11.16	0.17
	Task performance	24	2024	−0.03	−0.03	[−0.11, 0.06]	87.13***	
Team demographic variety	Innovation performance	50	14834	0.11	0.12***	[0.07, 0.16]	483.55***	6.43***
	Task performance	140	33434	0.04	0.05**	[0.02, 0.07]	567.97***	
Team demographic disparity	Innovation performance	20	32011	0.04	0.05*	[0.00, 0.09]	93.48***	5.87*
	Task performance	102	81102	−0.02	−0.02	[−0.04, 0.01]	498.62***	

Notes: †$p < 0.100$; *$p < 0.050$; **$p < 0.010$; ***$p < 0.001$; k indicates the number of effect sizes; N is the total number of teams; effect size r is sample size weighted mean effect size uncorrected for unreliability; effect size ρ is sample size weighted mean effect size corrected for unreliability; 95% C.I. indicates 95% of confidence interval of ρ; Q_W is the effect size heterogeneity statistic indicating the possibility of moderators; Q_B is the statistic indicating the significance of moderators.

Table 4　The moderating role of culture on the relations between team demographic diversity and team performance

Variables	Culture	k	N	r	ρ	95% C.I.	Q_W	Q_B
Team demographic separation	Western countries	28	2295	–0.05	–0.05	[–0.13, 0.03]	95.53***	0.45
	Eastern countries	5	324	0.02	0.02	[–0.16, 0.21]	1.82	
Team demographic variety	Western countries	104	29279	0.03	0.03†	[–0.00, 0.07]	407.20***	7.63**
	Eastern countries	86	18989	0.09	0.10***	[0.07, 0.13]	653.25***	
Team demographic disparity	Western countries	63	72472	–0.02	–0.02†	[–0.05, 0.00]	301.91***	4.62*
	Eastern countries	59	40641	0.01	0.02	[–0.01, 0.04]	274.62***	

Notes: The meanings of symbols are the same as them in Table 3.

Table 5　The moderating role of team type on the relations between team demographic diversity and team performance

Variables	Team type	k	N	r	ρ	95% C.I.	Q_W	Q_B
Team demographic separation	R&D teams	3	366	0.04	0.04	[–0.18, 0.27]	2.07	
	TMTs	2	179	–0.05	–0.06	[–0.34, 0.24]	0.08	0.53
	General work teams	28	2074	–0.05	–0.05	[–0.13, 0.04]	92.28***	
Team demographic variety	R&D teams	17	9723	0.21	0.23***	[0.15, 0.30]	260.28***	
	TMTs	102	29304	0.06	0.07***	[0.04, 0.10]	591.22***	24.34***
	General work teams	71	9241	0.01	0.01	[–0.04, 0.05]	164.20***	
Team demographic disparity	R&D teams	2	143	0.06	0.07	[–0.13, 0.26]	0.00	
	TMTs	86	102133	–0.01	–0.01	[–0.03, 0.01]	305.54***	1.03
	General work teams	34	10837	0.01	0.01	[–0.03, 0.05]	282.28***	

Notes: The meanings of symbols are the same as them in Table 3.

Table 6　The moderating role of culture on the relations between team demographic diversity and team performance in specific type of teams

Variables	Team type	Culture	k	N	r	ρ	95% C.I.	Q_W	Q_B
Team demographic separation	R&D teams	Western countries	1	224	0.07	0.08	[–0.17, 0.31]	0.00	0.11
		Eastern countries	2	142	0.02	0.02	[–0.20, 0.24]	1.76	
	TMTs	Western countries	2	179	–0.06	–0.07	[–0.21, 0.08]	0.08	–
		Eastern countries	–	–	–	–	–	–	
	General work teams	Western countries	25	1892	–0.05	–0.05	[–0.15, 0.04]	90.63***	0.28
		Eastern countries	3	182	0.02	0.02	[–0.24, 0.28]	0.05	
Team demographic variety	R&D teams	Western countries	7	5065	0.06	0.06	[–0.12, 0.24]	9.95	4.98*
		Eastern countries	10	4658	0.29	0.31***	[0.18, 0.43]	201.92***	
	TMTs	Western countries	39	16725	0.06	0.06*	[0.01, 0.11]	224.44***	0.25
		Eastern countries	63	12579	0.07	0.08***	[0.04, 0.11]	366.70***	
	General work teams	Western countries	58	7489	0.00	0.00	[–0.04, 0.04]	154.66***	0.08
		Eastern countries	13	1752	0.02	0.02	[–0.07, 0.10]	9.49	
Team demographic disparity	R&D teams	Western countries	2	143	0.06	0.07	[–0.10, 0.23]	0.00	–
		Eastern countries	–	–	–	–	–	–	
	TMTs	Western countries	39	64202	–0.03	–0.03*	[–0.06, –0.00]	114.98***	5.93*
		Eastern countries	47	37931	0.01	0.02	[–0.01, 0.04]	185.35***	
	General work teams	Western countries	22	8127	0.02	0.03	[–0.05, 0.11]	169.38***	0.21
		Eastern countries	12	2710	0.00	0.00	[–0.11, 0.10]	79.49***	

Notes: The meanings of symbols are the same as them in Table 3.

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Harrison   Klein (2007)

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(diversity)   ，

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                                    (Harrison & Klein, 2007)

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            (Hambrick, 2007)   ，   ，

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                        (van Dijk &   ，   ，

van Engen, 2013; van Knippenberg & Schippers,
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2007),   ，   ，

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Woods, Sacramento, & West, 2013; Williams &
O'Reilly, 1998);

(diversity as disparity)

(Joshi &
Roh, 2009), ， ，
(Harrison & Klein, 2007) ，
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(meta-analysis), 1 ， ，
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(Solanas, Selvam, Navarro, & Leiva, 2012)

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(standard deviation, SD)

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(mean Euclidean distance, MED)

(team diversity)
(Harrison & Klein, 2007; van
Knippenberg & Schippers, 2007), ，
， (Harrison & Klein, 2007) 1
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(Hambrick, 2007) ， ， (Harrison &
Sin, 2006; Solanas et al., 2012)
， ， Blau (Entropy)
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(Harrison & Klein,
Harrison Klein (2007) 2007; Magee & Galinsky, 2008) ，
(diversity ，
as separation) (diversity as variety) 1 ，

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	SD	$\sqrt{\dfrac{\sum_{i=1}^{n}(x_i-u)^2}{n}}$				
	MED	$\dfrac{\sum_{i=1}^{n}\sqrt{\sum_{j=1}^{n}(x_i-x_j)^2/n}}{n}$				
Blau	Blau	$\sum_{i=1}^{k}p_i^2$				
	Entropy	$-\sum_{i=1}^{k}[p_i\cdot\ln(p_i)]$				
	CV	$\sqrt{\dfrac{\dfrac{1}{n}\sum_{i=1}^{n}(x_i-u)^2}{u}}$				
	Gini	$\dfrac{\sum_{i=1}^{n}\sum_{j=1}^{n}|x_i-x_j|}{2n^2u}$				

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， p_i ( ), k ( ),
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(Harrison & Sin, 2006)

(gini coefficient)

(coefficient of variation, CV)

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(Guillaume et al., 2013; Williams & O'Reilly, 1998)   ，

(faultlines),

(Carton & Cummings, 2012, 2013; Cooper, Patel, & Thatcher, 2014)

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(Carton & Cummings, 2013; Thatcher & Patel, 2011),   (de Wit, Greer, & Jehn, 2012; O'Neill, Allen, & Hastings, 2013)

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(Guillaume et al., 2013; van Dijk & van Engen, 2013)   ，

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(Qian, Cao, & Takeuchi, 2013)   ，

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(Connelly, Tihanyi, Crook, & Gangloff, 2014)

(Harrison & Klein, 2007; van Dijk & van Engen, 2013)   ，

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(Harrison & Klein, 2007)

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，   (Trevor, Reilly, & Gerhart, 2012)   ，

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(   )   ( ) (Bell et al., 2011; Joshi & Roh, 2009)   ，

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(van Knippenberg & Schippers, 2007)   ，   ，

(Qian et al., 2013),

(de Wit et al., 2012)   ，

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，   (Thatcher & Patel, 2011)   (Halevy, Chou, & Galinsky, 2011),   ，

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(Johnson, Schnatterly, & Hill, 2013)

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(Anderson et al., 2010),

(Gupta, Hanges, & Dorfman, 2002)

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(Carton & Cummings, 2012)   ，

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(Qian et al., 2013),),
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(Kim, Wang, (Greer & van Kleef, 2010)
Kondo, & Kim, 2007; Wang, Jing, & Klossek, 2007),
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(Halevy et al., 2011), ,
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调节变量
• 绩效类型
• 国家地域
• 团队类型

2.5

团队多元化
• 分离型多元化(−)   团队绩效
• 多样型多元化(+)
• 不平等型多元化(−)

(Joshi & Roh, 2009)
(Bell et al., 2011; 图1
de Wit et al., 2012) , "-" , "+"
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, **3**
(Bell et al., 2011)
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(Thatcher &
Patel, 2011, 2012), 1984~2014
CSSCI ( )
(de Wit et al., 2012) , 30 (
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(de Wit et al., 2012; , , , , 254
2011) (1) ;
, (2) SD MED Blau Entropy CV gini
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(Horwitz & Horwitz, 2007) (4) (effect size); (5)
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, 33 Web of Knowledge
, SSCI (Academy of
( ) Management Journal Strategic Management Journal),

"team" "group",
"heterogeneity" "diversity" "dispersion" "gender/
sex" "age" "tenure" "education" "function
background" "demography"
(publication bias),
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3.2
Harrison Klein (2007)
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Entropy
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(Joshi &
Roh, 2009)
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(Hülsheger, Anderson, & Salgado,
2009)

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(Joshi & Roh,
2009),
(Bell et al., 2011)
Hofstede (1984)
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Gupta (2002) 61
Bell (2011)
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3.3
Comprehensive Meta Analysis
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Rothstein (2011) ,

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Mazumdar
(Borenstein et al., 2011) ,

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($\rho = 0.07, p < 0.001$);
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(Bell et al., 2011; Joshi & Roh,
2009),
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(3) , ($\rho =$
$0.12, p < 0.001$) ($\rho = 0.05, p < 0.01$)

$(Q_B = 6.43, p < 0.001)$,

$(\rho = 0.05, p < 0.05)$

$(\rho = -0.02, p = 0.18)$

$(Q_B = 5.87, p < 0.05)$,

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$(Q_B = 7.63, p < 0.01)$ ，

$(\rho = 0.10, p < 0.001)$;

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$0.03, p < 0.10)$

$(Q_B = 4.62, p < 0.05)$

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$(\rho = -0.02, p <$

$0.10)$ ，

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$(Q_B = 24.34, p < 0.001)$,

$(\rho = 0.23, p < 0.001)$

$(\rho = 0.07, p < 0.001)$ ，

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$(Q_B = 4.98, p < 0.05)$,

$(\rho = 0.06, p = 0.52)$,

$(\rho =$

$0.31, p < 0.001)$ ， ，

$(\rho = -0.03, p < 0.05)$,

$(Q_B = 5.93, p < 0.05)$

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	k	N	r	ρ	95%	Q_W
	33	2619	−0.04	−0.04	[−0.11, 0.04]	99.18***
	190	48268	0.06	0.07***	[0.04, 0.09]	1087.05***
	122	113113	0.00	0.00	[−0.02, 0.02]	592.67***

***$p < 0.001$; k ; N ; r ; ρ ;
95% ; Q_W

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	k	N	r	ρ	95%	Q_W	Q_B
	9	595	−0.06	−0.06	[−0.21, 0.08]	11.16	0.17
	24	2024	−0.03	−0.03	[−0.11, 0.06]	87.13***	
	50	14834	0.11	0.12***	[0.07, 0.16]	483.55***	6.43***
	140	33434	0.04	0.05**	[0.02, 0.07]	567.97***	
	20	32011	0.04	0.05*	[0.00, 0.09]	93.48***	5.87*
	102	81102	−0.02	−0.02	[−0.04, 0.01]	498.62***	

†$p < 0.100$; *$p < 0.050$; **$p < 0.010$; ***$p < 0.001$; k ; N ; r ; ρ
; 95% ; Q_W ; Q_B

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	k	N	r	ρ	95%	Q_W	Q_B
	28	2295	−0.05	−0.05	[−0.13, 0.03]	95.53***	0.45
	5	324	0.02	0.02	[−0.16, 0.21]	1.82	
	104	29279	0.03	0.03†	[−0.00, 0.07]	407.20***	7.63**
	86	18989	0.09	0.10***	[0.07, 0.13]	653.25***	
	63	72472	−0.02	−0.02†	[−0.05, 0.00]	301.91***	4.62*
	59	40641	0.01	0.02	[−0.01, 0.04]	274.62***	

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	k	N	r	ρ	95%	Q_W	Q_B
	3	366	0.04	0.04	[−0.18, 0.27]	2.07	
	2	179	−0.05	−0.06	[−0.34, 0.24]	0.08	0.53
	28	2074	−0.05	−0.05	[−0.13, 0.04]	92.28***	
	17	9723	0.21	0.23***	[0.15, 0.30]	260.28***	
	102	29304	0.06	0.07***	[0.04, 0.10]	591.22***	24.34***
	71	9241	0.01	0.01	[−0.04, 0.05]	164.20***	
	2	143	0.06	0.07	[−0.13, 0.26]	0.00	
	86	102133	−0.01	−0.01	[−0.03, 0.01]	305.54***	1.03
	34	10837	0.01	0.01	[−0.03, 0.05]	282.28***	

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	k	N	r	ρ	95%	Q_W	Q_B
	1	224	0.07	0.08	[−0.17, 0.31]	0.00	0.11
	2	142	0.02	0.02	[−0.20, 0.24]	1.76	
	2	179	−0.06	−0.07	[−0.21, 0.08]	0.08	−
	−	−	−	−	−	−	
	25	1892	−0.05	−0.05	[−0.15, 0.04]	90.63***	0.28
	3	182	0.02	0.02	[−0.24, 0.28]	0.05	
	7	5065	0.06	0.06	[−0.12, 0.24]	9.95	4.98*
	10	4658	0.29	0.31***	[0.18, 0.43]	201.92***	
	39	16725	0.06	0.06*	[0.01, 0.11]	224.44***	0.25
	63	12579	0.07	0.08***	[0.04, 0.11]	366.70***	
	58	7489	0.00	0.00	[−0.04, 0.04]	154.66***	0.08
	13	1752	0.02	0.02	[−0.07, 0.10]	9.49	
	2	143	0.06	0.07	[−0.10, 0.23]	0.00	−
	−	−	−	−	−	−	
	39	64202	−0.03	−0.03*	[−0.06, −0.00]	114.98***	5.93*
	47	37931	0.01	0.02	[−0.01, 0.04]	185.35***	
	22	8127	0.02	0.03	[−0.05, 0.11]	169.38***	0.21
	12	2710	0.00	0.00	[−0.11, 0.10]	79.49***	

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Huang, 2013), ，
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(Barsade & Gibson, 2012)

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Helen Lee

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Journal of Management	5	Applied Psychology	1
	5	Canadian Journal of Administrative Sciences	1
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A Meta-Analysis of the Relationship between Team Demographic Diversity and Team Performance

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Abstract

Over the past decades, team demographic diversity has become a topic of considerable interest to industrial and organizational psychology scholars and organizational managers. However, there is little consistent evidence regarding the relations between team demographic diversity and team performance. There are at least two potential reasons to explain these inconsistencies. First, there are different forms of team demographic diversity and the specific type of diversity should have different effects on team performance. For example, team demographic diversity can be categorized as separation, variety and disparity based on the statistical distribution of team members' characteristics. Second, past researchers suggest considering contextual issues in team demographic diversity research. Rather than test the direct relationship between team demographic diversity and team performance, they have pointed out that contextual factors (e.g., cultural context) should play an important moderating role in the relationship between team demographic diversity and team performance.

In order to explain the inconsistencies in past research examining the link between team demographic diversity and team performance, we conducted a meta-analysis to examine the effects of different types of team

demographic diversity on team performance. Our meta-analysis was based on 345 effect sizes from 137 Eastern and Western empirical studies with 79,639 teams. Each author independently coded the data and resolved discrepancies through discussion. In our coding system, we coded diversity as separation, variety, or disparity based on the measures of diversity used in each empirical paper. Further, we collected contextual data to examine the potential moderating effects of contextual factors, such as performance types, cultural context and team types.

Results of main effects showed that team demographic variety had significantly positive effects on team performance, whereas team demographic separation and disparity were unrelated to team performance. Further, moderation analyses showed that the relations between team separation, variety, disparity and team performance were moderated by performance types, cultural context and team types. Specifically, considering performance type as a moderator, variety and disparity were more positively correlated with innovation performance compared to general task performance. With respect to cultural context, team demographic variety in eastern countries was more positively correlated with team performance compared to variety in western countries, whereas team demographic disparity in western countries was more negatively correlated with team performance compared to disparity in eastern countries. Regarding team types, team demographic variety was more positively correlated with performance in top management teams (TMTs) and research and development (R&D) teams compared to general work teams.

Our results showed that different demographic diversity had distinct effects on team performance, depending on the specific diversity type and context (e.g., performance types, culture and team types). However, many researchers rarely distinguish between different types of demographic diversity. Thus, we suggest that future studies should pay more attention on this issue by specifying the demographic diversity types. Further, teams in Eastern countries should increase diversity as variety to improve their performance, whereas teams in Western countries should not only pay attention to team demographic variety, but also need to decrease team demographic disparity to avoid its negative effects on team performance. Overall, our findings have specific implications for companies to improve their performance through team demographic diversity management.

Key words   team diversity; separation; variety; disparity; performance