ONLINE APPENDIX

GETTING TO KNOW YOU: MOTIVATING CROSS-UNDERSTANDING FOR IMPROVED TEAM AND INDIVIDUAL PERFORMANCE

Appendix A1. Comparison of Cross-Understanding with other constructs of Team Cognition

Construct	Definition (Citation)	Key mechanisms	Cross-understanding is…
Cross-understanding	Extent to which group members have an accurate understanding of one another's mental models (Huber & Lewis, 2010)	Communication effectiveness, task learning, coordinated action	-
Shared mental models	Shared understanding among team members of the task, team, equipment, and situation (Cannon-Bowers, Salas, & Converse, 1993)	Coordinated action, situational awareness	Different Cross-understanding does not depend on members' mental models being similar or overlapping. Convergence among members' mental models does not always happen, and it is not necessary for better team performance.
Transactive memory systems	Shared division of cognitive labor with respect to encoding, storing, and retrieving knowledge from different but complementary areas of expertise (Hollingshead, 2001; Wegner, 1986)	Division of cognitive labor, development of specialized expertise, coordinated action	Broader Cross-understanding includes comprehension of beliefs, sensitivities, and preferences, and does not depend on a division of cognitive labor.
Interpersonal congruence	Degree to which group members see others in the group as those others view themselves (Polzer, Milton, & Swann, 2002)	Self-verification Identity negotiation Cohesion	Different Cross-understanding includes comprehension of beliefs, sensitivities, and preferences, and does not include self-views. Confirming negative self-views can be detrimental for performance.
Perspective taking	Tendency to spontaneously adopt the psychological point of view of others (Davis, 1983)	Empathy Cohesion	Narrower Empathy is not necessary for cognitive and behavioral adaptation.

Appendix A2. Details about measure of cross-understanding

We assessed the extent to which team members understood the mental models of other members using four items representing the four aspects of mental models thought to reflect cross-understanding (Huber & Lewis, 2010). The measure shows acceptable reliability ($\alpha = 0.94$) in the current sample. The stem for all four items of the cross-understanding measure is: "How well do you understand the knowledge, beliefs, sensitivities, and preferences of each of your teammates? Answer each of the questions below, using the following scale: 1=very little understanding … 5=extensive understanding." Participants then rated each of their teammates on each of the 4 items, creating a round-robin style (or network-style) measure of cross-understanding. The four items used for the measure were: (1) "How well do you understand what it is that this member knows in terms of factual knowledge relevant to the Capstone© simulation?", (2) "How well do you understand what it is that this member believes, in terms of cause-and-effect relevant to the Capstone© simulation?", (3) "How well do you understand what issues that this member is sensitive to, relevant to the Capstone© simulation?", and (4) "How well do you understand what it is that this member prefers, with respect to the Capstone© simulation?".

Because terminology related to mental models might be unfamiliar to respondents, we provided participants with a brief tutorial before presenting them with the cross-understanding measure. The survey described an example task of "driving a car" to illustrate the meanings of "factual knowledge" (i.e., it is legal to turn right on red after you stop; cars must be inspected every year), "cause-effect beliefs" (i.e., if one drives at a high speed on wet pavement, the car could skid), "sensitivities" (i.e., being sensitive to the risks of speeding after having been stopped by the police in the recent past), and "preferences" (i.e., preference for eco-friendly cars). Following this example, participants were directed to think about the Capstone© simulation and respond to the four cross-understanding items for every team member.

The incoming rating of each team member by every other team member represents the cross-understanding of that focal member in their team. Higher scores indicate that the focal member's mental models are well understood by fellow team members. In this paper, we computed a composite score for a team's cross-understanding by averaging members' ratings of other members on the four cross-understanding items – for example, the composite score in a four-member team would be the average of 12 ratings (as each member was rated by 3 others); higher average scores indicate higher cross-understanding in the team.

Appendix A3. Regression Models: Team goal orientation, Cross-understanding, and Individual Performance

Variables[a]	Team Performance-prove Orientation Interaction		Team Performance-avoid Orientation Interaction	
	Model A1 DV: Cross-understanding	Model A2 DV: Individual Performance	Model A3 DV: Cross-understanding	Model A4 DV: Individual Performance
Fixed Effects				
Intercept	.01	376.00**	-.02	375.19**
	(.03)	(2.44)	(.03)	(2.46)
Indiv. GPA		21.42**		21.42**
(Level 1)		(2.64)		(2.64)
Team Avg. GPA	.14*		.14*	
	(.06)		(.06)	
Learning Orientation	.18	-11.36	.24*	-6.59
	(.06)	(8.40)	(.06)	(8.51)
Performance-prove Orientation	.01	5.73		
	(.08)	(6.76)		
Performance-avoid Orientation			-.03	.89
			(.07)	(5.75)
Learning X Performance-prove Orientation	-.34*	-1.63		
	(.16)	(13.98)		
Learning X Performance-avoid Orientation			-.41**	-15.48
			(.15)	(13.65)
Cross-understanding		18.63**		17.37**
		(6.47)		(6.54)
Random Effects				
Residual Var.		3158.7		3156.0
Team intercept Var.		308.5		310.0
R-squared	.09		.11	
Pseudo R-squared		.08		.08

Note. ** $p < .01$; * $p < .05$; values in parentheses denote standard errors. Var. = variance. Models B2, B5, and B8 are ordinary least squares (OLS) regressions. All other models are hierarchical linear (HLM) regressions.

[a] All variables are at team level (Level 2) unless specified otherwise, and are grand-mean centered. Level 1 variables are group-mean centered.

In accordance with Hayes (2015), the index of moderated mediation for Hypothesis 4b is calculated as the product of the coefficient of the interaction term between learning orientation and performance-prove orientation in Model A1 (-.34), and the coefficient of cross-understanding in Model A2 (18.63). Similarly, for Hypothesis 5b, the index of moderated mediation is calculated as the products of the coefficient of the interaction term between learning orientation and performance-avoid orientation in Model A3 (-.41), and the coefficient of cross-understanding in Model A4 (17.37).

Appendix References

Cannon-Bowers J. A., Salas E., & Converse S. 1993. Shared mental models in expert team decision making. In ***Individual and Group Decision Making***, Castellan NJ (ed.). Lawrence Erlbaum Associates: Hillsdale, NJ; pp. 221-246.

Davis, M. H. 1983. Measuring individual differences in empathy: Evidence for a multidimensional approach. ***Journal of Personality and Social Psychology,*** *44*(1): 113-126.

Hayes, A. F. 2015. An index and test of linear moderated mediation. ***Multivariate Behavioral Research,*** *50*(1): 1-22.

Hollingshead, A. B. 2001. Cognitive interdependence and convergent expectations in transactive memory. ***Journal of Personality and Social Psychology,*** *81*(6), 1080.

Huber, G. P., & Lewis, K. 2010. Cross-understanding: Implications for group cognition and performance. ***Academy of Management Review,*** *35*: 6-26.

Polzer, J. T., Milton, L. P., & Swann Jr, W. B. 2002. Capitalizing on diversity: Interpersonal congruence in small work groups. ***Administrative Science Quarterly,*** *47*(2): 296-324.

Wegner, D. M. 1986. Transactive memory: A contemporary analysis of the group mind. In ***Theories of Group Behavior*** (pp. 185-208). Springer New York.