SPECIAL ISSUE

Collective Orientation and Team Performance: Development of an Individual Differences Measure

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Objective: We examine the construct of collective orientation, develop a measure to assess individual differences in collective orientation, and examine the extent to which the collective orientation of team members predicts performance on a variety of team tasks. **Background:** Scholars increasingly emphasize the importance of teamwork in collaborative work environments, and evidence indicates that a lack of teamwork is a prominent factor in many real-world accidents. Although it is clear that some persons are more team oriented than others are, there are few instruments available to assess individual differences in collective orientation in a team context. **Method:** We develop a scale to measure collective orientation in teams, gather evidence on reliability and construct validity, and examine the extent to which collective orientation predicts team performance. **Results:** Results indicate that the Collective Orientation Scale is reliable, correlates with cognate measures, and predicts performance on a variety of team tasks. **Conclusion:** We discuss the role of collective orientation in teams and the application of this scale to assess and diagnose teamwork deficiencies in work groups. **Application:** This research should contribute to a further understanding of factors that influence collaboration and coordination in teams.

INTRODUCTION

Organizations rely on teams to perform tasks that are complex, are demanding, or require a coordinated effort. Some advantages that teams offer include the capacity to pool resources, exchange information, coordinate actions, and even share the responsibility for team decisions. However, team members do not always operate as a team, and real-world examples abound in which a lack of teamwork or failure to function collectively as a team has led to disastrous consequences. The purpose of this research is to examine one aspect of teamwork that we term collective orientation, develop a measure to assess individual differences in collective orientation, and examine the extent to which the collective orientation of team members predicts performance on a variety of team tasks.

Teamwork and Collective Orientation

In a recent overview in *Human Factors* of the past 50 years of research on team performance, Salas, Cooke, and Rosen (2008) defined teamwork as "the interdependent components of performance required to effectively coordinate the performance of multiple individuals" (p. 541). Furthermore, to promote teamwork, they noted the importance of having team members with a collective orientation that would facilitate coordination and communication and subsequently improve team performance.

Moreover, real-world accident reports in aviation, transportation, and industry are rife with instances in which failure to function collectively as a team has led to poor team performance. The Aviation Safety Reporting System (ASRS) is a rich source of information on aircrew interaction. Foushee (1982) described one ASRS report in which, after ignoring repeated flight advisories from a copilot, the captain curtly told the copilot to "just look out the damn window" (p. 1063). In another ASRS report, a copilot described an in-flight incident in which the pilot exhibited "disinterest in the ideas of

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others. . . . [He] disregarded the advice of qualified crewmembers . . . [and] left little doubt that he believed himself to be infallible" (ASRS, 2004, p. 21). The National Transportation Safety Board (NTSB) reported one incident in which both copilots, without communicating, simultaneously operated their respective control sticks, resulting in an abrupt aircraft descent because of input from both controls (NTSB, 1996). The NTSB has also reported the occurrence of several railroad accidents stemming from "crewmembers' failure to function collectively as a team" (NTSB, 1999, p. 33) and described the 1996 collision of an out-of-control freight ship into the New Orleans Hilton, which was related to the faulty "exchange of information and the coordination of actions among the pilot, master, and crew" (NTSB, 1998, p. 62). In these and other instances, teamwork, or the lack of teamwork, defines effective team performance. Furthermore, a lack of collective behavior on the part of team members can have severe and even fatal consequences.

There is reason to believe that some individuals are more collectively oriented than others. Driskell and Salas (1992) examined differences in decision-making behavior and team performance on an interdependent team task. In this study, two-person teams made a series of task decisions: For each decision, each team each team member made an initial decision, they exchanged this information, and then each offered a final team decision. Results indicated that some team members tended to exhibit egocentric rather than collective behavior, ignoring task inputs from other team members and rejecting others' input when making team decisions. This occurred even when the participants had no information about their partner, the task, or their relative abilities at the task—they simply knew that they were to work together as a team.

Moreover, teams that were composed of egocentric team members performed more poorly than other teams. Results further indicated that egocentric team members viewed their partners' input as less valuable and believed it was less useful to work as a team than did other team members. Driskell and Salas concluded that *collective behavior*, the capacity to attend to task inputs from others in an interdependent manner, was a critical factor in effective team performance. They further noted that "in collectively-oriented teams, group members benefit from the advantages of teamwork, such as the opportunity to pool resources and correct errors—factors that make teamwork effective" (Driskell & Salas, 1992, p. 285). However, questions remained as to what factors compose collective orientation and how to identify collectively oriented or non–collectively oriented team members for purposes of selection or remediation and training.

We define *collective orientation* as the propensity to work in a collective manner in team settings. Anecdotally, we use the term to describe a team member who works well with others, seeks others' input, contributes to the team outcome, and enjoys team membership. However, despite the value commonly attributed to collective orientation, relatively little is known about collective orientation of team members.

Stevens and Campion (1994, 1999) attempted to define the knowledges, skills, and abilities (KSAs) required for effective team performance. The KSAs derived were primarily knowledge and skills based and, as such, were highly cognitive in nature. In fact, Stevens and Campion (1999) found that a multiple-choice measure designed to assess teamwork KSAs was highly redundant with measures of other cognitive abilities, such as verbal or math skills. More recently, Salas and Cannon-Bowers (2000) summarized teamwork competencies into three primary dimensions: cognitions, skills, and attitudes. More specifically, attitude competencies required for effective teamwork include the construct of collective orientation.

There have been a number of attempts in the research literature to assess some measure of collective orientation or team-related coordination, broadly defined. Perhaps the most prevalent of these measures are those related to individualism-collectivism. The construct of individualism-collectivism, as defined by Hofstede (1980), refers to differences in the focus on self and autonomy versus obligations to the social group. Whereas some have viewed individualism-collectivism as polar opposites, others have viewed individualism and collectivism as distinct, orthogonal constructs (Oyserman,

Coon, & Kemmelmeier, 2002). Moreover, although Hofstede (1980) originally focused on differences between cultures, subsequent research has conceptualized these differences as individual beliefs.

In summarizing research on individualism-collectivism, Oyserman et al. (2002) reached several conclusions. First, they noted the overly broad and diffuse ways that these constructs have been defined. Synthesizing existing measures, they identified seven major dimensions related to individualism (including competition, self-knowledge, and privacy) and eight major dimensions related to collectivism (including duty, harmony, and group work). They further stated that such idiosyncratic operationalizations of these constructs can lead to a Tower of Babel regarding differences in individualism-collectivism. Second, they observed enormous heterogeneity in how individualism and collectivism are operationalized and concluded that whereas individualism and collectivism may be viewed as multidimensional constructs, there are few existing measurement tools that assess these distinct dimensions.

Finally, we add to these observations by noting that individualism-collectivism has been examined in a variety of contexts, in terms of intimate relationships, family, personal goals, well-being and life satisfaction, and cultural values. For example, Wagner (1995) examined individualism-collectivism and cooperation in groups with a scale that included measures of broad individualist-collectivist values, cultural values, self-reliance, competitiveness, and concern for family, friends, and community. Lu and Argyle (1991) developed a measure of cooperation that was intended to tap preferences for joint or coordinated activities in a variety of domains, including work, friendship, family, and leisure settings. Other cognate measures are intended to tap constructs related to interpersonal cooperation in friendship or spousal relationships (Hui, 1988) or in school settings (Johnson & Norem-Hebeisen, 1979).

Our goal is to develop a measure of collective orientation in teams that improves on existing related measures in two primary ways. First, we define the collective orientation construct in terms of one specific domain: team interdependence. That is, this measure is neither intended nor developed to capture differences in self-sufficiency, competition, self-knowledge, privacy, harmony, duty, or self-actualization. Second, we develop our measure of collective orientation in terms of one specific context, team task performance, which we believe to be quite distinct from interaction in spousal, family, friendship, or romantic settings.

In sum, although there is a rich emerging body of research on the dynamics and importance of teamwork (Barrick, Stewart, Neubert, & Mount, 1998; DeShon, Kozlowski, Schmidt, Milner, & Wiechmann, 2004; Hollenbeck et al., 1995; Marks, Sabella, Burke, & Zaccaro, 2002; Neuman & Wright, 1999) and extensive evidence in real-world settings documenting the damage that a lack of teamwork can impose, there is currently no widely accepted instrument to measure collective orientation in a team setting. The goals of the current research were to (a) develop a measure of collective orientation, (b) compare this scale with existing cognate measures, and (c) assess the extent to which collective orientation predicts performance on team tasks.

SCALE DEVELOPMENT

Study 1: Item Selection and Revision

Our initial goal was to generate items that were descriptive of collective orientation in a team context. This task was informed by several sources of information. First, previous research and theory provided useful guidance on the measurement of teamwork skills and behaviors (e.g., Baker & Salas, 1992; Swezey & Salas, 1992). Second, examination of critical incidents related to effective and ineffective teamwork, such as that provided in the ASRS, provided real-world examples of the presence or lack of collective orientation. Finally, we reviewed existing cognate scales of cooperation and interdependence (e.g., Johnson & Norem-Hebeisen, 1979; Wagner, 1995).

We generated an initial pool of 80 items reflecting collective behavior or interdependence in team settings. The 80-item scale was administered to a group of 54 undergraduate psychology students. Respondents were asked to read each item and indicate on a 5-point

scale whether they agreed with that statement. The scale values were as follows: 1 (*definitely agree*), 2 (*somewhat agree*), 3 (*no opinion*), 4 (*somewhat disagree*), 5 (*definitely disagree*). To select internally consistent items, we examined the interitem correlation matrix and eliminated any item with an item-total correlation of less than .40. We also eliminated any items with extremely low variances, given that items on which most respondents either agree or disagree allow little discrimination. This strategy resulted in a 45-item revised scale. The revised scale was then administered to a sample of 80 Navy reservists. Again, we eliminated items with an interitem correlation of less than .40 and/or extremely low variances. This revision resulted in a preliminary 34-item scale.

Study 2: Scale Structure

We administered the revised scale to a larger pool of undergraduate psychology students (N = 160). We conducted a principal-components factor analysis to examine the interrelationships among the items and to further revise the scale. On the basis of the obtained scree plot of the extracted factors (Cattell, 1966), we selected four factors for examination. The following strategy was followed to refine the scale items. First, we selected those items that loaded at least .40 on one of the primary factors. Second, to ensure that each item was clearly defined by only one factor, we eliminated items that cross-loaded at least .40 on another factor. Finally, we eliminated five items that were clearly redundant and highly correlated with retained items. This resulted in retaining 16 items that met these foregoing criteria. From this analysis, two clear factors emerged. The first factor, labeled Affiliation, was composed of 10 items and included items such as "I enjoy working as part of a team" or "I enjoy assisting other team members." The second factor, labeled Dominance, was composed of 5 items and included items such as "It is important to stick to your own decisions, even when others around you are trying to get you to change" and "When others disagree, it is important to hold one's ground and not give in." The one remaining item that loaded on one of the remaining factors was not determined to be theoretically significant and was not retained. The revised 15-item scale demonstrated acceptable internal consistency, with a Cronbach's alpha of .85, as did the subscales, with alphas of .85 and .75 for the Affiliation and Dominance subscales, respectively. The items that compose the scale and their factor loadings are shown in Table 1.

Study 3: Relationship With Other Scales

The Collective Orientation Scale reflects two primary factors, high affiliation and low dominance. In other words, collectively oriented persons are those who value working with others versus working alone (high affiliation) and who value cooperativeness versus power and control (low dominance).

The classical view of scale validation (Campbell & Fiske, 1959) suggests that a new measure of a construct should covary with other measures that purport to measure the same construct (convergent validity) and should show weaker correlations with measures presumed to be unrelated (discriminant validity). We compared scores on the Collective Orientation Scale to several cognate or related measures, including the Group Productivities subscale of the Cooperativeness Scale (Lu & Argyle, 1991), the Cooperative Interdependence subscale from the Social Interdependence Scale (Johnson & Norem-Hebeisen, 1979), the Independence/Self-Reliance factor of the Individualism-Collectivism Scale (Wagner, 1995), the Preference for Solitude Scale (Burger, 1995), the Interpersonal Orientation Scale (Swap & Rubin, 1983), and the Hogan Personality Inventory (HPI; Hogan, 1986) subscales of Likeability, Sociability, and Intellectance.

Cooperativeness. Lu and Argyle (1991) developed of a measure of cooperativeness, defined as "acting together, in a coordinated way at work, leisure, or in social relationships" (p. 1010). They identified one factor, Group Productivities/Working Together, that related to cooperative activities in work or social settings. We predicted that Collective Orientation would correlate positively with the Group Productivities/Working Together factor of the Cooperativeness Scale.

TABLE 1: Factor Loadings of the Collective Orientation Scale Items

Item	Affiliation	Dominance
I find working on team projects to be very satisfying.	.640	
I would rather take action on my own than to wait around for others' input.	–.687	
I prefer to complete a task from beginning to end with no assistance from others.	–.689	
Teams usually work very effectively.	.584	
I think it is usually better to take the bull by the horns and do something yourself, rather than wait to get input from others.	–.439	
For most tasks, I would rather work alone than as part of a group.	–.761	
I find it easy to negotiate with others who hold a different viewpoint than I hold.	.519	
I can usually perform better when I work on my own.	–.711	
I always ask for information from others before making any important decision.	.477	
I find that it is often more productive to work on my own than with others.	–.655	
When solving a problem, it is very important to make your own decision and stick by it.		.514
When I disagree with other team members, I tend to go with my own gut feelings.		.427
When I have a different opinion than another group member, I usually try to stick with my own opinion.		.502
It is important to stick to your own decisions, even when others around you are trying to get you to change.		.611
When others disagree, it is important to hold one's own ground and not give in.		.486

Social Interdependence. Johnson and Norem-Hebeisen (1979) developed a scale to measure social interdependence in an educational setting. One subscale, Cooperative Interdependence, attempted to measure one's preference or willingness to cooperate and the extent to which cooperative activities were seen as valuable. We predicted that Collective Orientation would correlate positively with the Cooperative Interdependence factor of the Social Interdependence Scale.

Individualism-Collectivism. Wagner (1995) has argued that variations in preferences for individualism versus collectivism are related to group cooperation. He constructed a measure of individualism-collectivism with items drawn from several existing scales (e.g., Triandis, Bontempo, Villareal, Asai, & Lucca, 1988; Wagner & Moch, 1986) and found that one factor, Independence/Self-Reliance, was negatively related to cooperation. We expected Collective Orientation to correlate negatively with the Independence/Self-Reliance subscale.

Preference for Solitude. Burger (1995) developed a scale to measure individual differences in preference for solitude. Those with a high preference for solitude prefer to spend time alone versus with others and in social situations may choose to interact less with those around them. We expected Collective Orientation to correlate negatively with Preference for Solitude.

Interpersonal Orientation. Swap and Rubin (1983) developed a scale measuring interpersonal orientation, a general measure of a person's responsiveness to and interest in others. More specifically, the authors described people who are high in interpersonal orientation as both interested in and reactive to variations in

others' behavior. Those who are low on interpersonal orientation are characterized by a nonresponsiveness to interpersonal relations and are interested in neither cooperating nor competing with others but in maximizing their own gain. We included a 10-item subscale of the Interpersonal Orientation Scale related to sociability and other-directedness. We expected Collective Orientation to correlate positively with this subscale.

Finally, we wanted to examine the relationship of the Collective Orientation Scale to several Big Five dimensions of personality. We choose the HPI (Hogan, 1986) for two primary reasons. First, the HPI was developed specifically to focus on performance in work and social settings (Wiggins & Trapnell, 1997), and we believed this theoretical orientation would be most relevant to our examination of collective orientation in teams. Second, the HPI presents a six-factor variant of traditional Big Five models, specifically, distinguishing between Likeability, which reflects cooperation and smooth interpersonal skills, and Sociability, which includes strong outgoing, exhibitionist tendencies.

Likeability. According to Hogan (1986), the Likeability scale reflects perceptiveness, social acuity, and interpersonal competence. Because Likeability is related to cooperativeness and social competence, we predicted that Collective Orientation would be positively related to Likeability.

Sociability. According to Hogan (1986), people who score high on the Sociability scale are outgoing, exhibitionistic, and almost compulsively interactive. Sociability so defined reflects strong exhibitionist tendencies that may conflict with cooperative interaction in a team setting. Therefore, we predicted that Collective Orientation would be unrelated to Sociability.

Intellectance. The Intellectance trait has also been labeled Openness to Experience or Culture and reflects the degree to which a person is interested in intellectual, cognitive, or creative pursuits. Most scholars suggest that intellectance should be unrelated to interpersonal tasks that require social skills (Driskell, Hogan, & Salas, 1987; Porter et al., 2003). Thus, we predicted that Collective Orientation would be unrelated to Intellectance.

The Collective Orientation scale was administered in conjunction with these scales to 83 Navy reservists. Results are summarized in Table 2. As predicted, Collective Orientation was positively and significantly correlated with the Group Productivities/Working Together factor of the Cooperativeness Scale and the Cooperative Interdependence factor of the Social Interdependence Scale. As predicted, Collective Orientation was negatively and significantly correlated with the Independence/Self-Reliance subscale of the Individualism-Collectivism Scale and the Preference for Solitude Scale. Collective Orientation was not significantly related to Interpersonal Orientation, nor was Interpersonal Orientation related to the other cognate scales. Finally, Collective Orientation was shown to be significantly related to the HPI Likeability scale but unrelated to HPI Sociability and Intellectance.

In brief, the Collective Orientation Scale provides reasonable evidence of convergent and discriminant validity. Moreover, the predominately moderate effect sizes observed, according to Cohen's (1988) heuristics for small, medium, and large effect sizes, indicate that the Collective Orientation construct is related to, yet not equivalent to, these other cognate measures.

Study 4: Does Collective Orientation Predict Team Performance?

A critical concern in applied settings is whether collective orientation makes a difference. That is, does the Collective Orientation Scale predict team performance? We examine the predictive validity of the Collective Orientation Scale by examining the extent to which Collective Orientation predicts performance on several types of team tasks.

METHOD

Participants

Participants in this study were 40 students who volunteered to take part in a study of decision making in exchange for partial course credit. Participants were randomly assigned to two-person teams.

TABLE 2: Correlations of Collective Orientation and Cognate Measures

Measure	CO	AFF	DOM	Coop	SocInt	IndColl	Solitude	IntOr	Like	Soc	Intell
CO	—	.94**	.81**	.58**	.27*	–.63**	–.38**	.10	.35**	–.02	–.13
AFF		—	.56**	.65**	.32**	–.56**	–.41**	.08	.35**	.06	–.05
DOM			—	.29**	.10	–.57**	–.22*	.09	.24*	–.14	–.05
Coop				—	.42**	–.28*	–.52**	.02	.15	.28*	–.07
SocInt					—	–.15	–.40**	.14	.26*	.19	.01
IndColl						—	.16	–.06	–.19	.07	.02
Solitude							—	–.22*	–.08	–.41**	.13
IntOr								—	.07	–.12	–.30**
Like									—	.07	.05
Soc										—	
Intell											—

Note. CO = Collective Orientation Scale; AFF = Affiliation subscale; DOM = Dominance subscale; Coop = Cooperativeness Scale (Lu & Argyle, 1991); SocInt = Social Interdependence Scale (Johnson & Norem-Hebeisen, 1979); IndColl = Individualism-Collectivism Scale (Wagner, 1995); Solitude = Preference for Solitude (Burger, 1995); IntOr = Interpersonal Orientation Scale (Swap & Rubin, 1983); Like = Hogan Personality Inventory (HPI; Hogan, 1986) Likeability; Soc = HPI Sociability; Intell = HPI Intellectance. For ease of comparison, DOM subscale scores have been reversed so that high scores reflect low dominance.
*$p < .05$. **$p < .01$.

Materials

To examine the effects of Collective Orientation on a variety of team tasks, we adopted McGrath's (1984) team task taxonomy, which describes four major types of team tasks: *choosing* or decision-making tasks, *negotiating* tasks, *executing* tasks, and *generating* tasks. We designed four team tasks, representing each of these domains, to meet the following criteria. First, each task was designed to be interdependent, so that each team member must coordinate and interact with other team members to perform the task. Second, each task was designed to be additive, such that the task outcome or product represents the combined contributions of each team member. These tasks are described in the following sections.

Choosing. Choosing or decision-making tasks require that team members solve a problem or select a correct solution. The task designed for this study was a group decision-making task that is a variant of the "hidden profile" task described by Stasser and Stewart (1992). In this task, group members must decide between several problem solutions. There are several items of information that favor Solution A, several that favor Solution B, and several that favor Solution C. This information is distributed among the group members so that each individual has only a portion of the information that supports the correct answer, yet collectively they have the required information to reveal the correct answer. This hidden profile or correct answer will be discovered only if the group members exchange information they each have and adjust their initial solution preferences to converge on the correct decision. The task itself was a simulation of a naval decision-making task, described in detail in Johnston, Driskell, and Salas (1977).

The team members' job was to evaluate the information received by their ship on an unidentified contact and identify that contact as either an aircraft, surface ship, or submarine. Each team member was given a set of clues required to identify the contact. Team Member A had three items of information that indicated the contact was an aircraft, two items that indicated a surface ship, and two that indicated a submarine. Team Member B had three items of information that indicated the contact was a submarine, two items that indicated a surface ship, and two items that indicated an aircraft. However, the

two items of information that Team Member A had indicating that the contact was a surface ship was unshared information that B did not have; and conversely, the two items of information that Team Member B had indicating that the contact was a surface ship was unshared with A. Therefore, collectively, the team members had three items of information indicating the contact was an aircraft, three items indicating a submarine, and four items indicating a surface ship. Thus, the task required that they work together and exchange information to reach a correct team decision. The primary outcome measure employed was whether the correct solution was reached by the team.

Negotiating. Negotiating tasks require group members to resolve conflicts of viewpoint or interest. The task used was a mixed-motive negotiating task adapted from Carnevale and Lawler (1987) that required team members to play the roles of an employee representative or a management representative in a simulated labor-management negotiation. They were instructed to negotiate three issues: wages, a medical plan, and vacation. The task was a mixed-motive task in that each party in the negotiation had different interests or priorities. The employee representative would gain the most points by winning a strong settlement on wages, the medical plan was worth fewer points, and vacation was worth the fewest points. The priorities were reversed for the management negotiator.

Participants were instructed that their job was to arrive at an overall settlement on these three issues that would earn the most points for both parties. In other words, their task was to maximize not only their own points but also the points gained by their partner. Carnevale and Lawler described this task as an *integrative* negotiating task. That is, group members have the potential to negotiate and exchange concessions on low-priority issues to achieve an overall positive group outcome. The primary measure of outcome was the joint outcome or sum of the two negotiators' points (out of a maximum of 320).

Executing. Executing tasks require team members to perform a manual or psychomotor task. The task designed to represent this task domain was a team construction or assembly task. The team's task was to assemble a model airplane made of small plastic blocks according to a build sheet or instruction sheet. The blocks were sorted into two piles by the experimenters so that every other piece required for assembly was in a different pile, and each team member was given one pile of blocks sorted in this manner. Thus, team members were required to coordinate their actions to assemble each section of the model. The task was scored by recording the stage of assembly attained, as referenced by the build sheet, at the end of a 15-min period.

Generating. Generating tasks require group members to generate ideas or alternatives. The task designed for this study was a team brainstorming task in which team members were to think of as many uses for an object as they could. Team members were instructed to work together as a team to generate ideas, to build on each other's ideas, and to write down their team's responses as they were performing the task. The team's written responses were scored from 1 (*low creativity*) to 7 (*high creativity*) with the use of a creativity index described in Runco and Mraz (1992).

Because the tasks were designed to be additive, that is, the task outcome represents the combined efforts of all team members, our strategy to predict team task outcomes was to aggregate individual Collective Orientation scores into a mean Collective Orientation score for each team. The mean level of a trait is viewed as the most appropriate measure to use when aggregating individual scores for additive tasks (Barrick et al., 1998; Neuman & Wright, 1999).

Procedure

The Collective Orientation Scale was administered to all participants as part of a preexperimental questionnaire. Each team then received instructions regarding each task and performed each of the four team tasks for approximately 20 min. Following the testing period, each participant received a full debriefing regarding the purposes of the study.

RESULTS

Descriptive statistics and correlations among the measures used in the study are reported in Table 3. The results indicate that the relationship

TABLE 3: Means, Standard Deviations, and Intercorrelations of Measures

Measure	*M*	*SD*	1	2	3	4	5
1. Collective Orientation Scale	2.82	0.40	—	.40*	.39*	.37	–.28
2. Choosing	0.50	0.51		—	.65*	.17	–.52*
3. Negotiating	279.50	32.20			—	.46*	–.20
4. Executing	21.20	2.35				—	–.04
5. Generating	3.78	1.42					—

*$p < .05$.

between the overall Collective Orientation Scale and team performance was of medium effect size, according to Cohen's (1988) guidelines, for the decision-making task ($r = .40$, $p = .04$), the negotiation task ($r = .39$, $p = .046$), and the executing task ($r = .37$, $p = .056$). There was a negative, nonsignificant relationship between Collective Orientation and the generating task ($r = –.28$, $p = .11$). Note that the generating task correlated negatively with the other team tasks as well.

Rather than just examine how collective orientation is related to team performance on a single team task, we deemed it important to examine four key types of team tasks, as defined by McGrath (1984). However, given that each team performed all of the four tasks in the same order, we cannot rule out the potential effects of task order. That is, whereas the correlation between collective orientation and team performance on the choosing task ($r = .40$) is unaffected, the correlations between Collective Orientation and team performance on the negotiating task ($r = .39$), the executing task ($r = .37$), and the generating task ($r = –.28$) could be affected by performance on the prior tasks. The data do not suggest this possibility, however. Theoretically, we would perhaps expect the correlation between collective orientation and team performance to incrementally increase if the prior tasks were affecting scores, whereas the relationship is shown to be somewhat consistent across the first three team tasks.

Second, we are not able to independently discern the extent to which each of the experimental tasks requires interdependence. The team tasks were selected because they represented four key types of team tasks, according to McGrath's typology. Each task was designed and structured to be interdependent, such that team members were required to interact and coordinate with each other to perform the task. Although there may be some variation in interdependence—we expect that the generating or brainstorming task is probably inherently less interdependent than the others—we have no independent means to assess that.

DISCUSSION

The concept of group member interdependence refers to the capacity to take another's behavior into account during group interaction. Early group researchers identified this concept as a critical factor in group behavior. Mead (1934) observed that the basis for social conduct was the reciprocity of interaction, in which the action of one individual is the stimulus for the response of the other, a process that Dewey and Bentley (1949) later termed *transaction*. For Lewin (1948), interdependence or collective behavior constituted the essence of groups.

More recently, modern organizations have embraced an increasingly team-oriented work environment, and teamwork has been identified as a critical factor underlying effective team performance. The purpose of this research was to examine one component of effective teamwork, which we termed collective orientation. We believe the approach taken is unique in that this measure is not an amalgam of collectivist tendencies in school, family, or friendship settings but is specific to performance in a team context. It is pleasing to note that several

recent efforts to examine collective orientation have taken a similar approach (see Alavi & McCormick, 2007).

First, we found that collective orientation could be reliably measured. Second, we found that the Collective Orientation Scale provided good evidence of convergent and divergent validity. Collective orientation was shown to be related to several cognate scales of cooperation and interdependence yet not equivalent to these existing scales. Interestingly, we found collective orientation to be related to the HPI Likeability facet, which reflects social and interpersonal competence, but was not related to Sociability, which reflects extraversion and exhibitionistic tendencies, or to Intellectance, which reflects intellectual interests. Third, results indicate that the collective orientation construct is meaningful—that is, it is related to team effectiveness for a variety of team tasks. Collective orientation was shown to be associated with effective team performance on decision-making tasks, negotiation tasks, and executing tasks. Performance on generating (brainstorming) tasks, seemingly the least interdependent of the tasks studied, was not related to collective orientation or to performance on the other team tasks.

What do these results tell us about collective orientation? The two factors that underlie collective orientation are clearly related to the two broader factors of affiliation (the preference for working with others vs. working alone) and dominance (self-interest, dominance, and control vs. other-interest and cooperation). These two factors are also evident in other research efforts. Hogan (1983) has described two basic themes driving social interaction as *getting along* (attaining social acceptance) and *getting ahead* (attaining status and power); Wiggins and Trapnell (1997) describe these two broad constructs as *dominance/agency* and *nurturance/communion*, whereas McClelland (1961) termed these two factors the *need for affiliation* and the *need for power*. Thus, at the highest level of abstraction, effective team players are those individuals who value working with others versus working alone and who value cooperativeness versus power and control.

Of course, there are limitations to this approach and the conclusions that we have drawn from this research. If we consider a general input-process-output perspective on team performance, we have chosen to focus on one individual-level input factor and its relationship to team outcomes. However, we know that individual factors often interact with other group-level or structural factors to impact performance—in fact, Hollenbeck et al. (2002) have proposed a person-team fit approach that emphasizes the importance of task and organizational factors. Moreover, we have not addressed more complex issues related to team composition or team member heterogeneity. We assume that teams composed of collectively oriented members will be more effective than teams composed of members who are low in collective orientation. However, composition issues are rarely that simple; for example, LePine (2003) has argued that a team composed of too many highly dependable members may exert undue pressure on those who offer alternative viewpoints. Questions of team composition and heterogeneity are important issues that require further examination.

Furthermore, the collective orientation construct is specific to interdependent, task-oriented teams. Thus, for what Kozlowski, Gully, McHugh, Salas, and Cannon-Bowers (1996) call *action teams* and what Hollenbeck et al. (1995) term *distributed expertise* teams—teams in which members are highly interdependent and important task information is distributed across team members—the collective orientation of team members is likely to be a critical factor. Moreover, for tasks marked by high levels of uncertainty or unpredictability, which require a high level of coordination and mutual adjustment among team members in response to new task information (see Van de Ven, Delbecq, & Koenig, 1976), collective orientation is likely to be salient. For team tasks that require less interdependence, or that have relatively simple social or technical demands, collective orientation is likely to be less relevant.

One question for further study is how non–collectively oriented individuals may affect other team members. Kelley and Stahelski (1970) found that competitive persons tend to elicit competitive behavior from others, and

Totterdell (2000) has found evidence of mood linkages in teams, instances in which a negative mood can diffuse throughout a team. Thus, a poor team player may not only contribute less to attainment of a team task but also draw out poor team play in others. Further research is needed to explore this possibility.

Finally, we discuss how this tool could be used in practice. It is important to note in discussing potential applications that the development of the Collective Orientation Scale is quite preliminary, and although the results are promising, further research is required to establish its usefulness in real-world settings. We hope this initial research will spur further refinements.

The most obvious potential application of the Collective Orientation Scale is as a selection tool for placing individuals in teams. However, one practical concern regarding the use of the Collective Orientation Scale as a selection tool is the question of fakeability. On one hand, we may argue that most respondents would recognize the value in being perceived as team oriented and may easily fake responses to be perceived as collectively oriented. However, on the other hand, Oyserman et al. (2002) have noted, "To contemporary Americans, being an individualist is not only a good thing, it is a quintessentially American thing" and state that the "gold standard of individualism" is an American hallmark (p. 3).

Thus, there may be a social desirability bias to be seen as group oriented as well as a bias to be seen as individualistic. Nevertheless, it is important to note that Stevens and Campion (1999) found their measure of teamwork KSAs to be highly correlated with *g*, suggesting that more intelligent respondents may fake their responses. In fact, O'Shea, Driskell, Goodwin, Zbylut, and Weiss (2004) developed a conditional reasoning measure of team orientation to address issues of social desirability and faking. In sum, questions of social desirability bias and fakeability are empirical questions that should be addressed in subsequent research.

Another potential application of the Collective Orientation Scale is as a diagnostic tool for remediation and training of team members. We view collective orientation as an attitude or preference to work in a collective manner in team settings. This type of construct is less stable than personality traits but more stable than mere transitory states (see Driskell, Goodwin, Salas, & O'Shea, 2006; Mohammed & Angell, 2004). That is, collective orientation is stable enough to determine how individuals perform in team task settings but malleable enough to be changed through experience or training. This perspective is consistent with Driskell and Salas's (1992) suggestion that non–collectively oriented individuals may simply not have the appropriate experiences for working collectively in groups and with Wageman's (1995) view that people whose task experiences require cooperation tend to develop cooperative preferences. The extent to which collective orientation is malleable through experiences or structured team training interventions requires further investigation.

CONCLUSION

What are the practical implications of this scale and analysis? First, no previous measure of collective orientation in a team context exists, and this instrument should be useful for diagnosis of collective orientation and for selecting "team players" for highly interdependent team tasks (e.g., aviation, military, and medical teams). Second, in terms of task design, we know that some positions or roles in a team are more interdependent than others, and we know that some individuals are more collectively oriented than others. It seems reasonable in shaping a task to attempt to optimize the fit between team role requirements and team member capabilities. Third, this instrument should be a component in evaluating team training efforts. It can provide additional data (above and beyond Kirkpatrick's typology) on the efficacy of training interventions to enhance teamwork. Finally, it could be useful in determining the degree of "teamness" in an organization, providing one index of unit or team readiness for teamwork. Given the increasing complexity of organizational settings and work environments, we see no signs that the requirements for teamwork are abating. This research should contribute to a further understanding of factors that influence teamwork.

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