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Perspectives on Groups and Work Teams in the Workplace

Perspectivas sobre Grupos y Equipos de Trabajo

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Abstract. The paper reviews changes in the nature and environment of teams, suggesting that *why* teams change over time and *how and why* these changes impact team-related outcomes, such as performance, is sorely lacking. Below we relate in detail to these points while suggesting a comprehensive model drawing upon Tziner's research and publications on work teams and addressing the changes from the social psychology perspective suggested by Chernyak-Hai. By the end of this work, we derive specific predictions for empirical examination.

Keywords: teams, environment, performance, outcomes, social psychology perspective.

Resumen. El manuscrito analiza los cambios en la naturaleza y el ambiente de los equipos, haciendo sugerencias de por qué los equipos cambian con el tiempo y cómo y por qué estos cambios impactan en resultados de equipo, como en el desempeño. Se relacionan en detalle estos puntos y se sugiere un modelo integral basado en la investigación de Tziner y en las publicaciones sobre equipos de trabajo y se abordan éstos desde la perspectiva de la psicología social sugerida por Chernyak-Hai. Por último, se derivan predicciones específicas para su posterior estudio empírico.

Palabras clave: equipos, ambiente, desempeño, resultados, perspectiva de la psicología social.

In the present paper, we propose an integrative model that connects changes in teams' environment to alterations in internal activity patterns and the output of the system, and subsequent impacts on teams' coping and functioning, via three fundamental processes: internal structural changes, redefinition of goals, and changes in perceptions. We describe possible chains of affairs, some of them concern situational aspects, others deal with personal interactions, and still others point to individual characteristics. All these factors are discussed in a frame of teams' functioning in a dynamic environment posing specific challenges to effective coping and desirable output.

Before we elaborate the issues mentioned above and review some empirical findings, we summarize our model in the following chart (we return to this model when presenting our conclusions and pointing to some research directions). (See Figure 1).

The Group as a Dynamic Entity

Following Katz and Kahn (1966), a group (such as a work team) may be conceptualized as a system. As defined by these authors, all systems are organized around dynamic input/output structures, one of whose functions is to ensure resources for activation of the system itself. Their operation is therefore cyclical: the

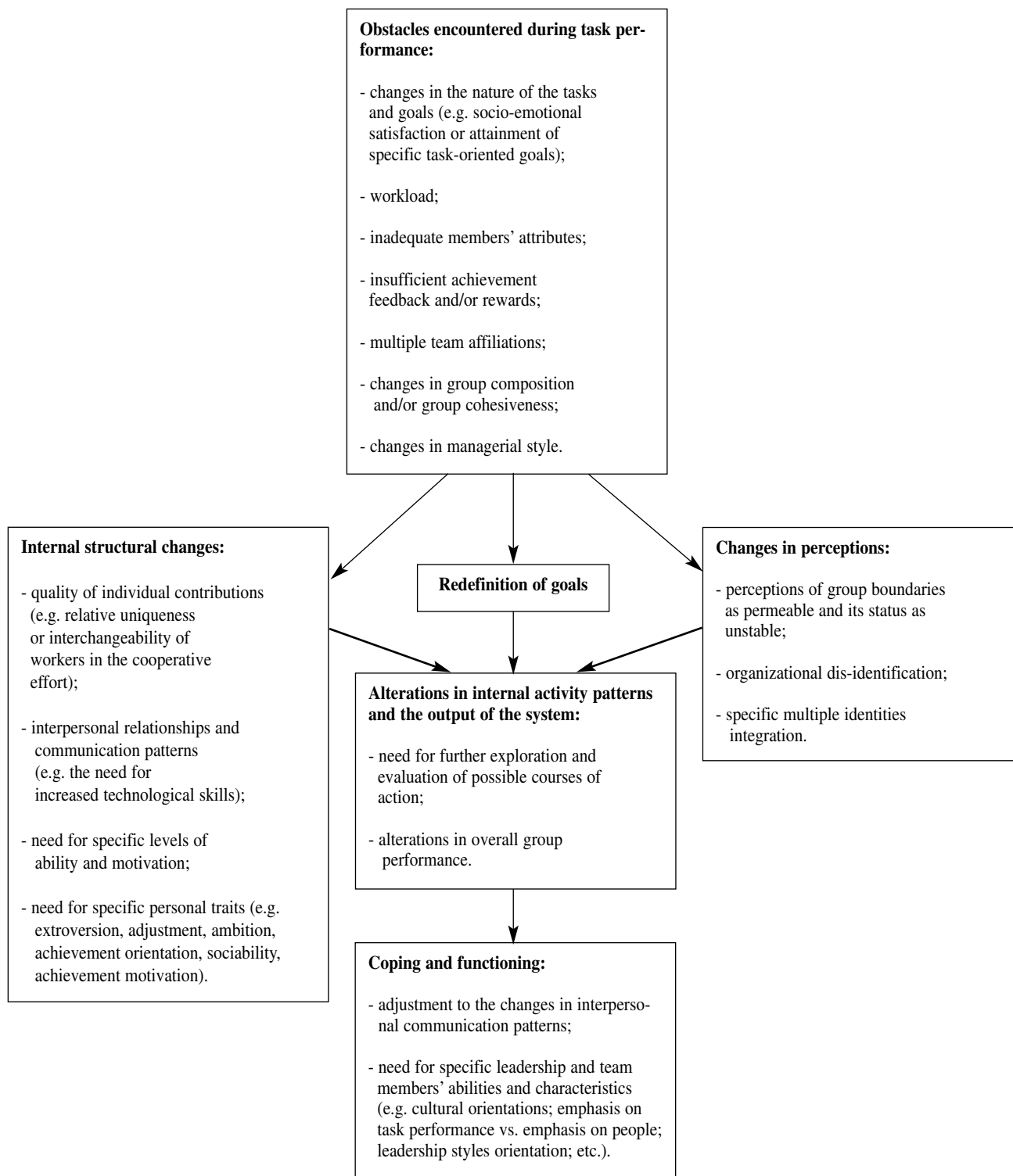
input is aimed in part at making resources available for intra-system processes. While some products are "exported" out of the system, others are reabsorbed into the system itself as new input serving to maintain its operation. Consequently, a noncyclical pattern of activity cannot define a system.

Another characteristic of systems is engagement in an active, constant, and intense struggle with ever-changing external forces, which involves a dynamic process of adaptation. The components of the system are required to exert a concerted effort to overcome environmental pressures, sometimes compelling the entire system to redefine its goals. In addition, every system has a distinct boundary that differentiates it from its surroundings. Consequently, all reciprocal processes between the system and its environment are dependent on the degree to which this boundary is penetrable.

Furthermore, Wolfe (1970) argues that research into groups requires application of the "structural time" approach, whereby phases in the creation of "links" must be distinguished. In his opinion, it must never be assumed that any segment of the network of interpersonal links that develop between individuals within the group is likely to remain invariant over a period of time. Even the single link between two individuals, as a constituent of a set, is not invariant over time. From the moment of its inception, each link is subject to constant development as a result of the influence of the experiences undergone by the individuals in the interaction. These experiences are liable to force them to adapt their link to the situation, again perhaps even making it necessary to redefine goals.

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Figure 1. Integrative model of team's functioning in a dynamic environment



In addition, the intrinsic nature of group tasks also has implications for group performance (Collins & Guetzkow, 1964; Roby & Lanzetta, 1958). Some tasks constitute obstacles to group achievement because of either inherent attributes or the task environment.

Consequently, they induce friction on the socioemotional level of interaction. This emphasis on tasks challenged the classical approach to group performance, where interpersonal, socioemotional, relationships were generally regarded as a separate unit, isolated

from the influence of events in the task environment.

Thus, alterations in the external situation affect the group since they act as inputs into the group system. It can therefore be hypothesized that obstacles encountered during task performance, or changes in the nature of the tasks, may lead to internal structural changes, even in groups characterized predominantly by socioemotional interactions. Here these changes would take the form of modifications in the nature of the interpersonal relationships. Furthermore, they might result in the redefinition of goals, because they constitute the code that directs the homeostasis. As a result, both the internal activity patterns and the output of the system will be altered. Given this causal relationship, effective coping with a task requires that the intragroup communication system be appropriate to the nature of the task (Shaw, 1964).

Indeed, communication patterns play an important part in group effectiveness. Shultz, Ketrow, and Urban (1995), for example, provide evidence that the quality of group decisions may suffer when communication is constrained, thereby leading to inadequate exploration and evaluation of possible courses of action. With respect to the product of these decision-making processes, namely group performance, centralized communication networks appear to be more effective for simple assignments, while decentralized networks are more effective for complicated tasks (Collins, 1970; Shaw, 1964, 1976). If we invoke the dynamic model, then a change in the nature of both tasks and goals can be expected to be accompanied by *parallel* changes in interpersonal communication patterns.

It is similarly probable that the kinds of leadership abilities required for effective group action also vary with type of task (Shaw, 1976), group goals (Bass, 1990; Stogdill, 1974), and members' attributes. Different cultural orientations are particularly worth noting, as some put the emphasis on mutual interdependence, while others stress autonomous coping and achievement (Jung & Avolio, 1999), a distinction previously known as collectivistic vs. individualistic cultures. Leaders fulfill a variety of functions, such as serving as the structural crystallizer of the group, the catalyst of intergroup processes that lead to the development of interpersonal links, and the coordinator and mediator of activities. Thus, in a group designed to afford socioemotional satisfaction and provide its members with a suitable framework for interactive processes, the pattern of leadership is likely to be person-oriented and essentially different from that in an instrumental group committed to the attainment of specific task-oriented goals.

Individual-oriented groups generally consist of members who value individual success, initiative, and personal accomplishment, and who tend to look out for themselves and their own interests. In contrast, collective-oriented groups consist of members who value

interpersonal relationships, emphasize in-group solidarity, and attain gratification of achievement needs through the success and accomplishments of the other group members or the group as a whole. According to Jung and Avolio (1999), transactional leadership is particularly effective in managing individual-oriented groups, while transformational leadership is better suited to collective-oriented groups. When team members come from different cultures and collaborate via technological means, there is a danger of misunderstandings and differential perceptions of proper team functioning. Such a situation is likely to delay the team's progress or even sabotage the final product.

The Social Identity Approach

In a recent review, Tannenbaum and his colleagues (Tannenbaum, Mathieu, Salas, & Cohen, 2011) list three significant change themes in modern teams: dynamic composition; technology and distance; and empowerment and layering. From the perspective of social psychology, an important aspect of these change themes is the question of social identification and its implications for the functioning of group members. Although the authors refer briefly to this issue, we would like to elaborate on it further.

According to the Social Identity Theory (Tajfel & Turner, 1986), three group characteristics are crucial to members' perceptions: group boundaries permeability; group status stability; and group status legitimacy. These features are especially salient when group status is perceived as disadvantaged in some way. In the current context, the sense of disadvantage may stem from workload, lack of the technological skills needed in the changing work environment, insufficient achievement feedback and/or rewards, etc. It is reasonable to assume that a dynamic (i.e., unstable) composition, technology and distance, and layering would encourage team members to see their group boundaries as permeable rather than rigid, and its status as unstable, and therefore to be more open to the option of leaving the team and moving to another one (in the same or a different organization) if it fails to meet their expectations. Moreover, these perceptions may be initially embedded with lesser team identification (or in the words of the authors: "unclear boundaries can create ambiguity about identity and responsibilities"; p. 15), making leaving the team and its "decomposition" even more feasible.

The specific type of social identification most relevant to this discussion is organizational identification (OID). Like other forms of group identification, OID (Mael & Ashforth, 1992) is a perceptual/cognitive construct that is relational and comparative, serves in part to enhance self-esteem, and is a matter of degree. In essence, OID means belief in and acceptance of organization's goals and values, will-

ingness to make an effort for the benefit of the organization, and the desire to maintain membership in it. This is a crucial issue given that the authors deal with specific challenges that teams today encounter, such as rapid formation and turnover, multiple affiliations, workload, and the physical (and psychological) distance, or even isolation, of team members. In terms of Social Identity Theory, under these circumstances we may expect a tendency for dis-identification with the goals and values of the organization and a consequent ease of dropout.

The Effects of Group Composition on Task Performance

Tziner (1982a) notes that small group research tends to focus on groups established in order to satisfy members' sociopsychological needs rather than production demands, despite the practical value of knowing the effects of group composition on group outcomes. As early as 1976, Terborg, Castore, and DeNinno noted that "little has changed in this regard over the intervening years" (p. 783). Furthermore, Tziner (1986) points out that the few attempts to assess more outwardly directed performance outcomes have been restricted to groups that are experimentally contrived and assigned simplistic tasks requiring little coordination or communication (e.g., Goldman, 1965; Johnson & Torcivia, 1967). In these studies, group members cooperate by sharing the whole task, in what are termed collaborative tasks. This type of research, however, is only tangentially related to the dynamics surrounding group outcomes in complex natural settings (Tziner & Eden, 1985).

According to Tziner (1986), whereas the extensive literature on individual efficacy indicates the dominant influence of talent or ability on output (Guion, 1983), the relative dearth of work on group composition leaves basic questions regarding the relevance of group characteristics to performance unanswered. He argues that while it is reasonable to expect ability to play a central role in determining group efficacy, the multiple requirements of sophisticated group task settings introduce complexities not always apparent in the discussion of individual abilities. Principal among these is the question of aggregation: In what fashion do individual capacities combine, or aggregate, to determine group efficacy? Do certain skill groupings perform better than others? And if so, why?

Surprisingly enough, the limited empirical evidence of simple task situations (generally of a collaborative nature) provide equivocal answers to the question of aggregation. Hill (1982), Shaw (1976), and Steiner (1972) conclude that members' task-relevant abilities simply combine in an additive manner. In their view, each member contributes to group production in direct proportion to his or her task-relevant ability, irrespective of other members' abilities; the higher a given

member's task-relevant ability, the better the group's performance.

Other research indicates that group performance often deviates from this model of simple additivity (Rohrbaugh, 1981), both for better and for worse. On the one hand, there are reports of positive non-additivity, when groups seem to accomplish more than the sum of their parts (Egerbladh, 1976). On the other hand, cases of negative non-additivity have been reported, where efficacy falls below that predicted from individual task-relevant skills and talents (see the discussion of "process loss" in Hackman & Morris, 1983).

These findings have elicited several *ad hoc* theoretical explanations. Laughlin and Johnson (1966), for example, link positive non-additivity to the combination of unique resources, each necessary for a separate task facet. On the other hand, Secord and Backman (1974) argue that negative non-additivity, or the inhibition of group production, stems from the feelings of anger evoked by pairing with inferior partners.

Although these speculations suggest interesting dynamics, they fail to provide a unified understanding of the phenomenon. In fact, no explanation has yet to be offered for the existence of both positive and negative non-additivity. Here, again, it may be helpful to consider this issue from the perspective of social psychology, and in particular the concepts of multiple team affiliations, similarity, and equity.

Multiple team affiliations

Multiple team affiliations actually means multiple identities. While each team to which an individual belongs may serve as a source of social identification, the team identities may not be convergent since different teams may have different, or even conflicting, norms and requirements. For example, in one team an employee may be asked to supervise others, while in another he or she is subordinate to other members or to the team leader. Under these circumstances, the employee may integrate the different identities in a variety of ways: intersection, i.e., identification with properties common to several group identities; dominance, i.e., one identity dominates over the others; compartmentalization, i.e., different identities is dominant in different contexts; or merger, i.e., one extended identity which contains characteristics of all group identities (Roccas & Brewer, 2002). The manner of integration of an employee's multiple identities is largely a function of individual differences, such as personality, values, goals, etc.

It is important to note that these distinctions are not merely theoretical classifications. Each type of integration may have direct implications for the team members' organizational commitment, and consequently for the group's productivity and/or efficacy.

The question of multiple affiliations and how they are handled by different members of the team must therefore be regarded as an additional challenge to team functioning which may also impact the issue of non-additivity.

Similarity and Equity theory

The Similarity (e.g., Edwards, Caplan, & Harrison, 1998; Kristof, 1996; Hollenbeck et al., 2002; Walsh, Craik, & Price, 2000) and Equity theories offer distinct pictures of the effect of group composition on group performance. At the dynamic level, Similarity Theory employs concepts of beneficial attraction and disruptive tension. In contrast, Equity Theory deals solely with tension, but treats it as a motivational force with both positive and negative outcomes. In both cases, however, the shared thesis is that these interpersonal forces have an impact on the translation of team members' abilities into group performance. More specifically, the motivational effects of group composition are seen by both theories as the key reason that group performance frequently falls above or below what is expected from the simple addition of members' abilities.

The differing dynamics of the two social psychology theories generate contrasting predictions as to the ultimate relation between group composition and performance. It will be recalled that the starting point for this analysis of group composition and performance was the simple additivity model. Yet both the empirical evidence and the thrust of the arguments do not seem to support this intuitively pleasing model. Indeed, it would appear that non-additivity, or the deviation from group outcomes predicted by the simple sum of group abilities, may be an equally valid perception of extant phenomena. This conclusion does not deny the importance of the additivity model. However, social psychologists commonly promote the notion that in task structural situations, non-additivity should increase in cases of mutual interdependence. This idea is reinforced by task structuralists, who couch it in terms of the "weak link" model of conjunctive efforts.

The Similarity and Equity theories both suggest that a variety of forces may work against additivity in collaborative tasks. Similarity would seem to be most important in tasks where members' efforts are easily compared to each other, such as when they perform interchangeable functions (i.e., when they are capable of replacing one another). Equity considerations would appear to be more dominant in cases in which each member's contribution is unique but outcomes are shared. Thus, social psychology draws our attention to the potential importance of the relative uniqueness or interchangeability of workers in the cooperative effort as determinants of the driving forces behind non-addi-

tivity. Parenthetically, in current Work and Organizational Psychology, the theories of Similarity and Equity drive the research of three important conceptualizations: LMX (leader-member exchange quality), Fit, and Organizational Justice.

As LMX is premised on the notions of social exchange (Blau, 1954) and reciprocity (Adams, 1965), subordinates offered high quality LMX are expected to feel compelled to reciprocate in exchange for the preferential treatment they receive from their manager. According to norms of reciprocity, positive affect, respect, loyalty, and obligation, characteristic of high-quality LMX, should prompt employees to make more valuable contributions to their organization's viability and effectiveness. In other words, it may be expected that subordinates who enjoy high-level LMX will "pay back" their managers by engaging in discretionary behavior that benefits their manager and organization, even though it defies the organization's rules and norms (which are perceived as hampering its functioning and effectiveness).

Fit

In the study of work relationships, the concept of congruency between individual and contextual characteristics, or *fit*, has played a major role in the further understanding of this notion. Fit denotes a harmonious relationship between the individual and his/her work environment, the extent to which the individual is fitted to the work-environment and vice versa, and a reciprocal complementary relationship between an individual and the environment (Loftquist & Dawis, 1978; p. 45). Holland (Holland & Rayman, 1986) has also contributed largely to the elaboration of the meaning of the fit concept. In his view, different personality types require different work environments. For instance, enterprising types flourish in enterprising environments because such environments provide the outlets and reinforcements they need. Also, Tziner (1987), Tziner and Falbe (1990) and recently Brown and Trevino (2009) have convincingly empirically demonstrated the beneficial effects of fit. Last, Greguras and Diefendorff (2009) documented the positive effects of different types of fit. They showed that different types of fit (i.e., P-O fit; P-G fit; D-A fit) satisfy different psychological needs. The perception of fit between actual and desired performance is also the focus of two relatively new motivation theories. Evans (1986) developed an "integrative" model of general motivation based largely on Social Learning Theory (Bandura, 1977), and claims that goal setting has its main effects on motivation through the performer's pride or shame in performance and his or her sense of efficacy or feeling that he or she can function at the desired level of performance. In Klein's (1989). Integrated Control Theory Model, a feedback loop is

the basis for providing information to ensure the attainment of goals.

Organizational Justice

Justice-related consequences include some of the most important outcomes studied by management researchers. For example, perceptions of unfair or unjust treatment have been associated with many harmful effects including negative health outcomes, intentional deviant behaviors, and withdrawal behaviors (Pinder, 2008). To explain the power of justice-related phenomena, we must recognize that employees in organizations constantly tend to examine the actions taking place within the organization, in an attempt to determine whether the action was fair, or in other words, whether justice exists within the organization. To this end, they explore according to three types of criteria:

- The first criterion relates to practical implications, i.e. personal gain or loss, which derive from the employee's feeling that the decisions reached were just and right. This fairness is examined by the Distributive Justice Theory (Adams, 1965).
- The second relates to the way in which the decision to take action was made: the employee assesses whether the processes that led to the decision were fair.
- The third relates to the approach adopted during planning and application (Sheppard, Lewicki & Milton, 1992), i.e. the treatment employees receive during implementation, their feeling that the organization imparted new information and treated them sensitively and fairly. This fairness is examined by the Interactional Justice Theory.

Leventhal (1980) says that the rule of distribution is "the individual's belief that fairness exists when allocated procedures satisfy certain criteria", or in other words, the beliefs of the individuals regarding the suitable distribution of resources in the company, and particularly material awards. Reward distribution is considered fair if it is based on the assumption that the method of exchange is fundamentally based on human life cycles (Adams, 1965); justice, according to this perception, is the perceived fairness of rewards that people receive in the exchange. Distributive justice in an organization relates to the perceived fairness of resource allocation in the organization (Miller & Lee, 2001), or fairness as perceived by employees vis-à-vis the management's distribution of resources in the organization (Cropanzano, Prehar & Chen, 2002).

The outputs of an organization, perceived by employees as rewards, are the resources that the organization gives them, inter alia: power, prestige, authorities, responsibilities, wages, etc. (Adams, 1965). The inputs, which employees bring into the exchange, may be education, intelligence, training, seniority and

investment in work (Adams, 1965). The theory of distributive justice focuses on the level of results-rewards, which the organization grants employees, versus the input that they invest in the organization. The theory also assumes that people aspire to expand, as far as possible, the gap between the inputs they invest and the outputs they receive (Folger & Cropanzano, 1998). The basis upon which people develop their perception of justice, or injustice, of a given action is grounded in a comparison (balance) between their input and output, and the perceived ratio of input and output of others, who are perceived by assessors as similar or comparable to them.

$$\frac{\text{Compensation minus Cost (of B)}}{\text{Input (B)}} < \frac{\text{Input minus Cost (of A)}}{\text{Input (A)}}$$

This comparison indicates the expectation of resource allocation according to the equity principle – the input–output ratio of people perceived as comparable should be equal, and the measure of rewards should be compatible with the measure of input. In other words, the reward given to employees should be compatible with their investment (Ritzman & Tomaskovic-Devey, 1992). Hence, individuals who share similar characteristics should expect equal awards.

The concept of equity is extremely abstract and does not define relevant investments or relevant comparisons. As a result, the concept has numerous meanings in different theoretical and social contexts. In order to maintain theoretical focusing, we will present one aspect of equity manifested in the principle of merit; the judgment of justice based on this principle manifests expectation of rewards from an institution in exchange for the ability to act, which is perceived as a contribution to the organization (Miller & Seligman, 1999). This mandates a social definition of the best attainment, or the kind of result, which should be encouraged, in a capitalistic, liberal society, even if not stated explicitly. Merit frequently relates to effectiveness, a contribution to aggregated achievement, or the maximization of product. It is customary to define merit as an achievement based on the combination of capability and effort. The prevalent perception is that high intellectual ability, when accompanied by effort, has a potential for significantly contributing to the greater good, and consequently warrants high reward. The salient characteristics dealt with in this context are education (as reflecting intellectual capability and training for position), effort and responsibility (Miller & Seligman, 1999). The literature on distributive justice also indicates the existence of two additional principles of distribution: the principle of equality and the principle of need (Sheppard, Lewicki, & Minton, 1992).

According to the principle of equality, equal resources should be distributed to all employees, regardless

of their production level. Jasso (1980) states that there is universal preference for equality among group members who feel close to one another. In fact, according to this approach, equality is justice, and hence group members will assess the degree of legitimacy of awards on the basis of deviation from equal distribution. Such a principle of equality is particularly suitable in cases when it is difficult to define employee performance (input), for example, when they work within a team (Sheppard et al., 1992). This type of distributive principle enhances the chances of attaining social harmony (Folger & Corpanzano, 1998), enhances the sense of community (Sheppard et al., 1992), and often reduces conflict within the organization (Leventhal, 1976). Therefore, a justice judgment based on the equality principle is based on membership in a community (and particularly the nation state), and manifests the appropriate basis for awarding individuals (Miller & Seligman, 1999). However, in regard to the general public, supporting the equal distribution of resources does not contradict the perception that advocates rewarding individuals according to their characteristics, but only controls the scope of the gap perceived as legitimate (Kelley & Evans, 1993).

According to the third distributive principle – distribution according to need – resource distribution is carried out according to the needs of the receiver, regardless of his/her input as an employee. This principle of distribution underscores the humaneness and kindness of the resource distributor (Folger & Corpanzano, 1998), and the desire or need to consider the employee's needs (Sheppard et al., 1992). The principle of need acknowledges the fact that individuals are different in their ability to achieve rewards that will enable them to live suitably. The demand of reward according to need emerged in the wake of the industrialization process, which led to the loss of the ability of households to guarantee the individual's social security. The basic idea underlying this principle is that differential abilities and disabilities are the result of a "lottery of nature" (Rawls, 1971), and as a result, resource equality will not bring about equality in life's opportunities.

A connection between the principles of need and equality can be established. We may claim that "from the moral point of view, it is appropriate that everyone has sufficient resources to maintain a fair, autonomous and fully satisfying life". However, one can argue that people will not have enough if others have much more. Needs, according to this perception, are shaped in a specific social context, and are derived from what is accepted in society as a proper standard of living. Consequently, justice judgments are based on the principle of need, which in turn is based on guaranteeing minimal resources that will be sufficient for living according to accepted social norms. In welfare states, people regard this principle as a means for bridging gaps between capabilities, and ensuring an equal basic standard of living, through an institutional setup that

provides individuals with meager abilities with an income higher than which they would have received under free market conditions, and with basic rights such as health and welfare services.

The Effects of Interpersonal Communication, Social Influence, and Performance on Interactive Group Processes

In view of the insights offered by social psychology, Tziner and his colleagues undertook to examine the influence of various group factors, both internal and external, on group performance, conducting team studies in real settings, unlike the artificial settings used in most previous research in the field (e.g., Hare, 1976; Rohrbaugh, 1981). The investigations focused on the actual functioning of tank crews in the Israeli army, on the assumption that their internal relationships and subsequent performance would have a direct bearing on the survival of the group, as well as serious consequences for the organization as a whole (Shaw, 1976; Shirom, 1976). Tank crews were selected because they are small, formal, instrumental groups with a high internal interdependency. Performance depends on the coordinated effort of all crew members, requiring not only task specialization and technical skills, but also team spirit and the continuous and direct involvement of the tank commander (team leader) in their activities.

In such teams, the tasks cannot be accomplished unless all members make an effective concerted effort (Tziner, 1982a). Thus, the nature of the relationship between the cohesiveness of the group and its performance level is more than just a question of academic concern (Greene & Schriesheim, 1980; Schriesheim, Mowday, & Stogdill, 1979).

While some previous research supported the notion that group performance is positively related to socioemotional cohesiveness (D'Augelli, 1973; Greene & Schriesheim, 1980; Krichevskii, 1973; Landers & Grum, 1971; Mullen & Cooper, 1994), possibly because of the strong communication channels that characterize such groups (Hare, 1976; Paulus 1980), other studies found negative relationships or no relationships at all between these two factors (Lott & Lott, 1965; Stogdill, 1972; Warwick, 1964). In light of this conflicting evidence, it was suggested that expectations regarding the instrumentality of cohesive groups in attaining organizationally defined goals is largely a function of the social norm prevailing in the group (Anderson, 1975; Hare, 1976; Steers & Porter, 1979). Thus, a cohesive group is likely to be productive if its members identify with the organization; if they do not, such groups can "use" their cohesiveness to become counter-productive, or even to sabotage the organization (Berkowitz, 1954; Stogdill, 1972; Tziner, 1982a). While this argument assigns socioemotional processes a crucial role in determining performance, it tends to

ignore the instrumental aspect of the group's performance and the role of the group's ability to carry out the duties expected of it.

In the first study, Tziner and Vardi (1982) tested the hypothesis that the ability level of a task-oriented group serves as a moderator between its socioemotional cohesiveness and its performance effectiveness, proposing that the weak or non-existent relationships between cohesion and outcomes in previous studies resulted from inadequate capability. Drawing on earlier findings indicating positive relationships between group ability and performance level (e.g., Egerbladh, 1976; Graham & Dillon, 1974; Hoffman, 1979; Laughlin & Branch, 1972), the researchers argued that even when a group experiences both high levels of socioemotional attraction and high motivation to perform formal organizational goals, low ability in crucial activities will lead to poor task outcomes (Hackman & Morris, 1975; Secord & Backman, 1974). This poor level of performance may, in turn, affect interpersonal bonds, thereby reducing effectiveness even more (Tziner, 1982b). However, if ability is high, poor performance can be more easily handled (and possibly corrected) by a cohesive group than by one which is loosely knit, a proposition supported conceptually by Schultz and Schultz (1998). It was thus predicted that in the tank crews, which represent groups with high inter-task dependence, the relationship between group level of performance and the socioemotional bonds among the members would be affected by the group's ability.

Crews were formed by self-selection following a sociometric procedure using intensity of reciprocity in selection as the measure of cohesiveness. Crew ability level was determined by the average ability of its members. Performance was defined by the team ratings of a superior officer.

The results of this study indicated that performance was best explained by crew cohesiveness ($r=0.30$), although the moderating effect of crew ability on performance was also strongly substantiated by the high correlation between group cohesiveness and ability ($r=0.52$). Although Hare's (1976) definition of cohesiveness in socioemotional terms was employed, Tziner and Vardi claim that it is likely that the soldiers' choice of crewmates also reflects the advantage of working with potentially capable peers. New soldiers, anxious about their future organizational performance as individuals and crew members, might base their choices on instrumental, as well as emotional considerations (see: Bjerstedt, 1956; Borgatta, Couch, & Bales, 1954; Hollander, 1956; Secord & Backman, 1974). The moderating effect of group ability did not readily lend itself to explanation in this study, as the amount of objective information available to candidates regarding the ability of the others was not manipulated prior to the sociometric selection procedure.

In a further analysis of the same sample, the researchers examined the question of how leadership style and group cohesiveness interact to affect the performance effectiveness of the tank crews, which carry out clearly defined and interdependent tasks under the supervision of a formal leader, that is, their commanding officer. An interactive model of these relationships is presented in Figure 2.

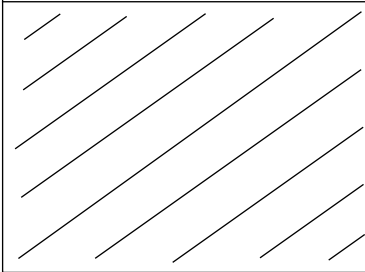
Relying on the model of group cohesiveness, the investigation rested on the assumption that leadership style is characterized by two dimensions: emphasis on task performance, and emphasis on people orientation (see: Luthans, 1979; Reddin, 1970; Stogdill, 1974). In general, it is held that when task performance is emphasized, a leader will concentrate on task-relevant aspects of the crew members' activities, instrumental exchanges of information, and the need to overcome various obstacles encountered in the course of the task. When people orientation is emphasized, the leader will be attentive to subordinates' needs as individuals and as a crew, and will be friendly and approachable (Katz & Kahn, 1978; Kerr & Schriesheim, 1974).

Furthermore, a leader's behavior can be conceived in terms of a high (H) or low (L) degree on each of the two dimensions, thus resulting in four leadership styles (Katz & Kahn, 1978). An H-H style is one in which leaders stress both task and people, H-L denotes a task-oriented style, and L-H, a people-oriented leadership style. The fourth style, L-L, is not considered viable for leading groups of the kind that was investigated in this study (e.g., Back, 1951; Bennis & Shepard, 1964; Festinger, Schachter, & Back, 1950; Schriesheim, 1980).

As they were examining a task structure that requires high interdependence (Thompson, 1967), the researchers posited that high (superior) performance effectiveness would be found in groups with: (1) high cohesiveness and an H-H leadership style; (2) medium cohesiveness and an H-L leadership style; and (3) low cohesiveness and an L-H style. The first possibility was based on the assumption that in highly cohesive groups, roles are clear, contingencies are spelled out, there is a shared understanding of the use of resources, and individual differences can be tolerated. Given this type of group task and a positive social attitude, a leader may exercise high involvement both in the process of task accomplishment and in the interpersonal arena. Moreover, under such favorable conditions, both the leader and the group would be ready and able to meet demands for even better performance.

The second possibility was based on the notion that the H-L leadership style (high on task, low on people orientation) is most suited to a medium cohesiveness group, because task-orientation would serve as a common goal encouraging greater cooperation. If tasks are well defined and members are moderately attracted to each other, the leader's emphasis on results will not

Figure 2. Combinations of command style and group cohesiveness expected to yield high performance effectiveness

Task Orientation Emphasis	HIGH	Medium Cohesiveness H-L COMMAND STYLE	High Cohesiveness H-H COMMAND STYLE
	LOW		Low Cohesiveness L-H COMMAND STYLE
		LOW	HIGH
		People Orientation Emphasis	

harm the still weak social foundations, and might even strengthen them. On the other hand, concentrating on socioemotional activities without pressing for accomplishment (L–H) might jeopardize the moderate level of cohesiveness already established.

Finally, under normal circumstances, if cohesiveness is initially low, the leader will first demonstrate a task orientation by clarifying the task and role structure (Bennis & Shepard, 1964; House, 1971; Festinger, Schachter & Back, 1950; Schriesheim, 1980). However, Tziner and Vardi were investigating instrumental groups (tank crews) in which tasks and individual roles were already well defined, and where low cohesiveness was characterized by a lack of interpersonal attraction, misunderstandings, and mutual misconceptions. Under these circumstances, task orientation would be less effective (if not actually detrimental; Blau, 1954; Lott & Lott, 1965), rather than creating a

social context conducive to performance effectiveness. The results of this analysis revealed only interaction effects of cohesiveness and command style on performance effectiveness (Table 1).

The F ratios in Table 1 indicate that the interaction between command style and cohesiveness is statistically significant, as predicted by the research model (see Figure 2). In other words, variability in performance effectiveness at the group (crew) level appeared to be related to different combinations of leadership style and group cohesiveness. This would mean that under conditions of high crew interdependence (as in tank operation), crew performance effectiveness could be enhanced by matching the command style to the prevailing level of cohesiveness in the group. In more general terms, team performance could be enhanced by matching leadership style to the interpersonal relations that characterize a particular work team.

Figure 3 presents the empirical effects on performance of three levels of cohesiveness and three styles of command.

Table 1. Two-way analysis of variance of the effects of command style and group cohesiveness on performance effectiveness

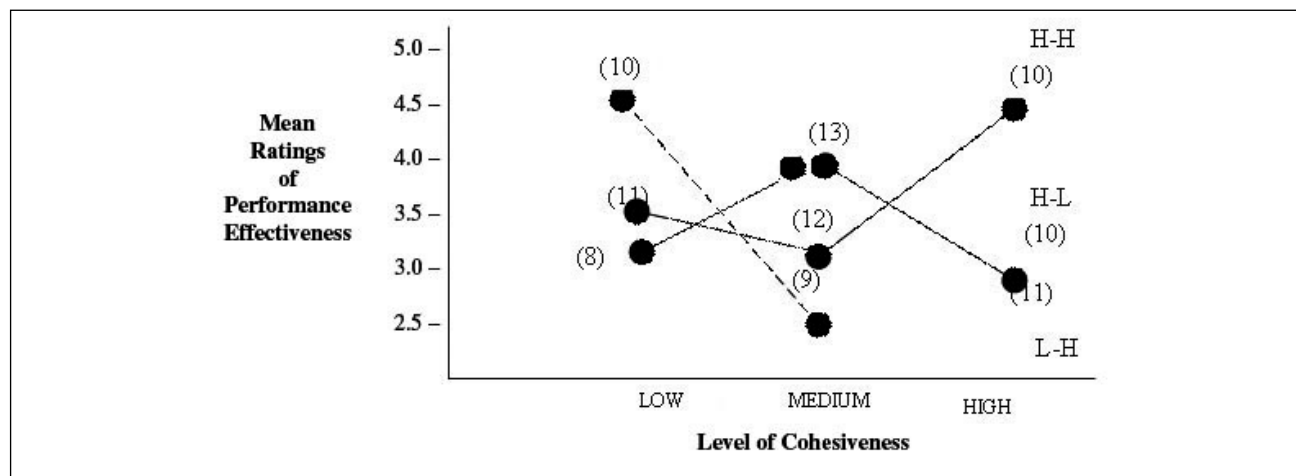
Source of variance	<i>Df</i>	<i>MS</i>	<i>F</i>
Command style (A)	2	1.743	1.636
Cohesiveness (B)	2	2.130	2.000
A < B	4	6.908	6.487*
Residual	85	1.065	

* $p < .001$.

The following patterns emerged from this analysis:

1. High cohesiveness crews perform best under the direction of an H–H commander (emphasizing both people–orientation and task accomplishment). Under other cohesiveness conditions, however, this command style is associated with notably lower levels of crew performance effectiveness.

Figure 3. Mean ratings of performance effectiveness as related to the combinations of cohesiveness level and command style



Numbers in parentheses represent cell sizes. H-H = high task orientation, high people orientation; H-L = high task orientation, low people orientation; L-H = low task orientation, high people orientation.

2. Low cohesiveness crews perform most effectively with an L-H commander (low on task emphasis, high on people orientation). This command style is associated with low levels of effectiveness under all other conditions of cohesiveness.
3. Although the relations are not statistically significant, H-L leaders appear to obtain the best performance effectiveness with groups of medium cohesiveness. On the whole, however, moderate cohesiveness groups did not display high crew performance effectiveness under any of the command styles.

These three trends were consistent with expectations, despite the rigid constraints associated with the design of a study in any natural organizational setting, and particularly in the military. One of these limitations was the need to employ cross-sectional data and a static notion of group cohesiveness, precluding the possibility of extrapolating conclusive evidence as to how, or to what extent, changes in crew cohesiveness across time might affect the results. Nevertheless, the authenticity of the procedure, the real-life environment, and the originality of the data provide insights that would be unobtainable in "neater" environments. The fact that crew cohesiveness served quite effectively as a situational variable lends further support to the situational approach to organizational leadership (e.g., Fiedler, 1971; Reddin, 1970). The authors suggest that in addition to examining task structure (Fiedler, 1971), task type (Gilmore, Beehr, & Richter, 1979), and leader-subordinate relationships (Fiedler, 1971), future investigations should also consider levels of cohesiveness (including "rejected" individuals) as a possible determinant of group performance effectiveness.

The concept of group cohesiveness in self-selected groups focuses attention on interpersonal relationships. In the study described above, for example, performance effectiveness was not significantly affected by either

group cohesiveness or command style taken separately, but only by their interaction. Indeed, considerable research has shown that group cohesiveness does not necessarily contribute directly to performance effectiveness (e.g., Berkowitz, 1954; Schachter, Ellerton, McBride, & Gregory, 1951; Seashore, 1954; Tziner, Nicola, & Rizac, 2003). Several moderating effects appear to intervene here, including group norms, task related competence (abilities), and group size.

Seashore (1954) and Anderson (1975), for instance, have shown that cohesiveness can lead to productivity when the emerging social norm is identification with the formal goals of the organization. Similarly, Mullen and Cooper (1994) found a small but significant positive relationship between cohesiveness and performance, which might have been higher had the researchers distinguished between teams whose norms favored increased performance and those lacking these norms. However, even when such necessary conditions as goal congruence, cohesiveness, and supportive leadership are met, level of skill and ability can still make a unique contribution to accomplishments. In fact, Tziner and Vardi's (1982) study suggests that the initial choice of team members may have as much to do with individuals' perceptions of how well their prospective partners will be able to carry out their tasks (i.e., instrumental considerations) as it does with social considerations.

In another investigation, which the authors call "a good example of the study of the impact of *a priori* and systematic manipulations of real-life group structures", Tziner and Eden (1985) examined how different tank crew compositions affect crew performance. For the purposes of the study, group composition was varied according to level of ability and motivation, both of which had been found to be positively, but not unequivocally, related to group productivity (Hill, 1982; O'Brien & Owens, 1969; Steers & Porter, 1979).

As explained above, ability composition effects can impinge on group performance in an additive or non-additive fashion, a finding that received support in a meta-analysis which revealed a correlation coefficient of $r = 0.33$ between group ability and group performance (Devine, Philips, & Fogel, 1998). The positive correlation appears to be more characteristic of collaborative tasks (Hill, 1982; Shaw, 1976), such as those performed by tank crews. Thus, from research indicating that each member contributes independently to group production in direct proportion to his or her ability (Bouchard, 1972; Johnson & Torcivia, 1967), one could posit that the higher the levels of ability and motivation of crew members, the better the performance effectiveness of the group. Consequently, if the ability and motivation of each crew member are treated as separate independent variables, the additive effects should be manifested in significant main effects and non-significant interactions.

It will be recalled, however, that group performance on complex tasks has also been found to exceed or lag behind performance expectations based on the ability levels of individual members (Egerbladh, 1976; Goldman, 1971; Laughlin & Branch, 1972; Rohrbaugh, 1981). In both cases, if significant interactions were to be found between ability and motivation, it would indicate that combinations of ability result in more (or less) productivity than expected, thereby offering evidence of the non-additive effects of group composition on group performance.

Tziner and Eden (1985) therefore hypothesized that some combinations of ability and/or motivation would yield a crew performance effectiveness that is higher (or lower) than could be anticipated by a simple aggregation of the ability and/or motivation levels of the crew members. Thus, in addition to the main effects of ability and motivation, interactions between these variables were also expected to contribute significantly to the variation in crew performance effectiveness.

Given the equivocal nature of the results of previous research, the authors attempted to ascertain whether the ability and motivation of crew members combine additively or interactively, or both, to affect group performance. The study examined 208 tank crews composed so as to generate all possible combinations of both ability and motivation levels (with no other interventions). In contrast to earlier studies, this design provided a sound basis for a causal interpretation. The crews performed real military tasks that required the synchronization and coordination of all three group members, and the effectiveness of their performance was ranked by the unit commanders after two months of military activity.

Both ability and motivation were found to have an additive effect on crew performance, even though each member had a clearly defined and distinct role. However, crew composition effects emerged only for ability: (1) the performance of uniformly high-ability

crews far exceeded the levels expected by the individual members' ability; and (2) the performance of uniformly low ability crews fell considerably below the expected level.

It was also found that replacing one member of a high-ability crew with a low-ability individual diminished crew performance disproportionately. Conversely, replacing one member of a low-level group with a high-ability soldier boosted effectiveness by about the same amount as replacing one low-ability member in a crew with a high-low-low composition. In both cases, the increased effectiveness was less than could be gained by turning a high-high-low crew into a group of uniformly high-ability members. The finding that "concentrated talent is more effective" in collaborative situations runs counter to the commonsense notion of "spreading talent around" (Nevin, Johnson, & Johnson, 1982).

The fact that group composition effects were found for ability but not for motivation confirmed previous findings of the effects of ability on group performance (Bouchard, 1972; Tziner & Vardi, 1982). In addition, the lack of a finding of composition effects for the combination of ability and motivation lends credence to the utility group approach to collaborative (cooperative) tasks, and calls into question the oft-quoted dictum that "Performance = Ability X Motivation" (Vroom, 1960). Furthermore, noting the considerable number of "statistical cards stacked against significant interactions" in their research design, Tziner and Eden (1985) conclude that the two significant interactions found in the study are sufficient evidence that crew members' ability and/or motivation may combine in a non-additive manner with respect to tasks of the type investigated.

The deviations from additivity confirm earlier findings and their theoretical underpinnings attributed, among others, to Laughlin and Johnson (1966) and Secord and Backman (1974). Moreover, they promote the contentions that in task structural situations characterized by mutual interdependence, non-additivity can be expected to increase, and that from the perspective of social psychology, equity considerations predominate when each member's contribution is unique, but outcomes are shared.

Increasing evidence is being reported in support of the hypotheses suggested in the investigations by Tziner and his associates (see, for example: Bass, 1985; Yukl & Van Fleet, 1992). Furthermore, in confirmation of Tziner and Eden's (1985) findings, Barrick, Stewart, Neubert, and Mount (1998) found that teams which received higher supervision ratings for team performance were those that were higher in general ability. In addition, they were also higher on personality attributes, such as conscientiousness, agreeableness, extraversion, and emotional stability, casting light on the relationship of additional parameters to group performance. In other words, high ability is not sufficient in and of itself to ensure superior team per-

formance; the personality traits of team members also impact performance. In negative terms, this means that team members who lack desirable interpersonal attributes may affect the team process in such a way that cohesiveness diminishes, more interpersonal conflict is generated, and less open communication develops. As a result, less of the work load is shared and, ultimately, team performance suffers.

Despite the relative paucity of research on how the personality composition of work groups affects team performance, some progress has been reported. For example, Barry and Stewart (1997) found a curvilinear relationship between team performance and the proportion of extroverts in teams completing disjunctive problem solving tasks (single-solution cooperative/collaborative type tasks in groups where members are completely interchangeable). A similar trend was found in teams performing conjunctive tasks, characterized by the potentially equal and essential, yet distinct, contribution of each team member.

Additional personality attributes found to link to effective group performance include adjustment, ambition, achievement orientation, and sociability (Dryskell, Hogan, & Salas, 1987; Thomas, Moore, & Scott, 1996). Researchers have also demonstrated that work team members who are relatively high on achievement motivation show more concern for group success (Zander & Forward, 1968), and that groups composed of members with high achievement motivation scores solve complex problems more efficiently than those with lower scores (Schneider & Delaney, 1972).

Conclusion

Studies of group composition, such as those described here, suggest that motivation, abilities, and the personality composition of teams all impact team performance (LePine, 2003; Neuman & Wright, 1999). For example, individual differences in cognitive ability and personality were found to affect team's capability to adjust to unexpected fault in communication crucial for successful task performance (LePine, 2003, 2005). Moreover, personal inclinations due to situational factors may also affect team performance. For example, it was found that situational propensity to trust either colleagues or management predicted preferences for teamwork (Kiffin-Petersen & Cordery, 2003).

In addition, group size has been shown to moderate the way in which other group attributes affect performance (e.g., Bertucci, Conte, Johnson, & Johnson, 2010; Egerbladh, 1976; Laughlin & Branch, 1972; Laughlin, Hatch, Silver, & Boh, 2006), and several studies have examined the processes and outcomes of groups performing cooperative, as opposed to collaborative, tasks (Kabanoff & O'Brien 1979; O'Brien, 1968; Tziner & Eden, 1985), which typically demand more interde-

pendence among group members (see: Shiflett, 1979; De Dreu, 2007). For example, perceiving cooperative outcome interdependence during performance of complex tasks led to more effective information sharing and functioning (De Dreu, 2007). All these are fruitful areas for future research. Nevertheless, the existing literature already gives rise to an essential conclusion: there must be a match between team members' task-related attributes, including motivation, personality traits, and abilities, on the one hand, and the nature and requirements of the group task on the other.

At the beginning of the present paper, we introduced an integrative model describing effects of various obstacles, or challenges, on eventual teams' coping and functioning. The model suggests three initial change domains following encountered obstacles: (a) Internal structural changes – these changes may be divided into changes in required personal characteristics of team members in a sense of their uniqueness or rather interchangeability, levels of ability and motivation, ambition, sociability and extroversion, etc.; and changes in interpersonal relations such as alterations in communication patterns. (b) Redefinition of goals – changes in commitment to the attainment of specific task-oriented goals. (c) Changes in perceptions – cognitive changes in perceptions of team's boundaries, which may influence levels of organizational identification and perceptions of possible withdrawing. Further, changes in these three domains are supposed to cause alterations in teams' activity patterns and overall performance, accompanied by inevitable re-evaluation of possible courses of action. Finally, in order to assure effective coping and functioning, the whole process has to be ended in adjustment to the encountered changes, even changes in leadership and/or team member composition.

Following this conceptualization, some practical propositions should be derived and empirically examined:

Proposition 1: The influences of encountered obstacles to team performance on alterations in internal activity are supposed to be mediated both by actual structural changes in teams' composition and interpersonal communication patterns, and by members' mental framing of team's goals, solidness and attractiveness.

Proposition 2: The mentioned mediators (i.e., a: structural changes, b: mental framing) may have different mediative weight, depending on the specific kind of team (e.g., its specialization, composition, work environment, etc., as potential moderators).

In other words, in some cases structural changes will be more important than cognitive processes in connecting challenges to coping, and in other cases cognitive processes will be of higher importance.

Proposition 3: As stated above, the predicted result of structural changes and cognitive processes are alterations in internal activity and the output of the system, but it is not the final outcome. These alterations should, in turn, mediate the influence of structural changes and cognitive processes on actual coping and functioning.

Future research should examine these and other predictions related to the overall process we have suggested here. Such a research would be able to clarify *how and why* changes in the nature and environment of teams affect team-related outcomes.

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