The Knowledge, Skill, and Ability Requirements for Teamwork: Implications for Human Resource Management

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This study reviews the literature on groups to determine the knowledge, skill, and ability (KSA) requirements for teamwork. The focus is on: (1) KSAs rather than personality traits; (2) team rather than technical KSAs; and (3) the individual rather than team level of analysis. Fourteen specific KSAs are derived. Then, the implications of these teamwork KSAs for the modification or development of human resource (HR) management systems are determined, and research issues are discussed.

The use of teams has become an extremely popular work design in all types of organizations today. The enthusiasm for this work configuration is so strong that it might be considered a fad in modern management philosophies. As is often the case with such rapid innovation, the support systems needed to manage the changes have not been properly modified or developed. One class of support systems is the human resource (HR) management of work teams. For example, how should we hire, train, compensate, appraise, and develop the careers of employees in work teams? Are such HR systems the same ones we have used for managing employees working on independent jobs?

A cornerstone of most HR practices is a thorough understanding of the requirements of the jobs. Therefore, the first purpose of this paper is to review the literature on groups to determine the potential knowledge, skill, and ability (KSA) requirements for teamwork. Then, the second purpose is to derive the implications of these teamwork KSAs for HR management practices.

Focus of the Paper

The purposes of the study can be further refined by describing the focus in several key regards.

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Focus on KSAs rather than personality. Attributes such as initiative, trust, openness, helpfulness, flexibility, and supportiveness are routinely mentioned as desirable team member characteristics (e.g., Kinlaw, 1991; Varney, 1989). The focus of this study is on KSAs, however, and not on personality traits or dispositions. Even though recent meta-analyses have demonstrated that personality-based selection systems may be capable of having some modest validity (Barrick & Mount, 1991; Tett, Jackson & Rothstein, 1991), the history of success in the prediction of job performance has been much better with KSA-based systems (Hunter & Hunter, 1984; Reilly & Chao, 1982; Schmitt, Gooding, Noe & Kirsch, 1984). Furthermore, a focus on KSAs emphasizes attributes which management can influence (e.g., via selection procedures or training programs), rather than trait or dispositional attributes which are presumed to be more stable characteristics of individuals that cannot be as readily influenced.

Focus on team rather than technical KSAs. The study also focuses on KSAs which are required or made more salient by the distinctive nature of teamwork situations, such as increased social and interpersonal requirements. The study does not focus on the technical KSAs required by the jobs. This does not suggest that technical competence is less important. In fact, because of the enhanced requirements for flexibility and versatility in teamwork settings, the demand that team members have a breadth of technical KSAs is often greater (Hackman, 1987; Sundstrom, De Meuse & Futrell, 1990; Walton, 1972). However, the expectation that employees be capable of the technical demands of the job is a factor in all work systems, and not unique to the team environment. Consequently, technical KSAs will not be a focus of the study.

Focus on the individual in the team. Most HR management systems are applied in part, if not primarily, to the individual employee. For example, employees are hired as individuals, each takes home an individual paycheck, performance appraisals must consider individual contributions to avoid loafing, and career development is very important to the individual. Therefore, this study focuses on the HR management of individual employees within teams. We recognize that the team level of analysis is also important to managing teams (e.g., staffing must consider the total membership composition, and compensation systems may need to link pay to team performance), but the team as the level of analysis has been the predominant focus of most previous literature (e.g., Levine & Moreland, 1990). Thus, this review complements previous literature by focusing on the management of individuals in teams.

The Knowledge, Skill, and Ability (KSA) Requirements for Teamwork

The literature on groups is extensive and diverse, with multiple roots. One of the earliest, most influential, and continuing sources of new knowledge about work teams is the literature on sociotechnical systems theory (e.g., Cummings, 1978; Pasmore, Francis, Haldeman & Shani, 1982; Wall, Kemp, Jackson & Clegg, 1986). More recently, there is substantial attention to the topic of work teams in the organizational behavior literature (e.g., Bettenhausen, 1991; Gladstein, 1984; Hackman, 1987; Shea & Guzzo, 1987; Sundstrom et al., 1990),

Table 1. Knowledge, Skill, and Ability (KSA) Requirements for Teamwork

I. INTERPERSONAL KSAs
   A. **Conflict Resolution KSAs**
      1. The KSA to recognize and encourage desirable, but discourage undesirable, team conflict.
      2. The KSA to recognize the type and source of conflict confronting the team and to implement an appropriate conflict resolution strategy.
      3. The KSA to employ an integrative (win-win) negotiation strategy rather than the traditional distributive (win-lose) strategy.
   B. **Collaborative Problem Solving KSAs**
      4. The KSA to identify situations requiring participative group problem solving and to utilize the proper degree and type of participation.
      5. The KSA to recognize the obstacles to collaborative group problem solving and implement appropriate corrective actions.
   C. **Communication KSAs**
      6. The KSA to understand communication networks, and to utilize decentralized networks to enhance communication where possible.
      7. The KSA to communicate openly and supportively, that is, to send messages which are: (1) behavior- or event-oriented; (2) congruent; (3) validating; (4) conjunctive; and (5) owned.
      8. The KSA to listen nonevaluatively and to appropriately use active listening techniques.
      9. The KSA to maximize consonance between nonverbal and verbal messages, and to recognize and interpret the nonverbal messages of others.
      10. The KSA to engage in ritual greetings and small talk, and a recognition of their importance.
II. SELF-MANAGEMENT KSAs
   D. **Goal Setting and Performance Management KSAs**
      11. The KSA to help establish specific, challenging, and accepted team goals.
      12. The KSA to monitor, evaluate, and provide feedback on both overall team performance and individual team member performance.
   E. **Planning and Task Coordination KSAs**
      13. The KSA to coordinate and synchronize activities, information, and task interdependencies between team members.
      14. The KSA to help establish task and role expectations of individual team members, and to ensure proper balancing of workload in the team.

and there are even some writings on the topic in industrial engineering (e.g., Davis & Wacker, 1987; Majchrzak, 1988). But the most extensive and longest-term literature on groups in general is in social psychology (e.g., Levine & Moreland, 1990; McGrath, 1984; Steiner, 1972).

This wealth of literature provides the domain for the review, but it frequently does not provide explicit guidance on KSAs for teamwork. So this review is not a simple summary of the literature. Instead, it often synthesizes the literature and infers the individual-level KSAs from the group- and organizational-level theories and findings. Furthermore, an effort is made to ensure a thorough and content valid survey of the literature. As each body of literature is reviewed, the relevant theories and findings are examined for underlying similarities, and then condensed and classified into a taxonomy. The result is 2 major categories of KSAs, with 5 subcategories and 14 specific KSAs as summarized in Table 1.

Interpersonal KSAs

Congenial and amicable interpersonal relations are present in more effective teams because they free members from having to deal with difficult conflicts and process issues (Hackman & Morris, 1975; Lawler, 1986; Seers, 1989). They also lead to the antithesis of alienation, frustration, and withdrawal, namely active, willing, and productive participation on the part of all team members. Perkins and Abramis (1990) suggest that team effectiveness depends heavily on the ability of individual members to successfully manage interpersonal relations with one another. Varney (1989) refers to this individual capacity as "interpersonal competence," and describes it as the ability to maintain healthy working relationships and to react to others with respect for ideas, emotions, and differing viewpoints.

In the traditional individual-based work environment, Lawler (1986) suggests that the interpersonal demands placed on employees appear much less consequential in terms of their relevance and impact, whereas in a team environment, the interpersonal demands appear much greater. A team-based setting requires that each employee be capable of interacting in a positive and effective manner with peers (Seers, 1989). That is, there is a greater need for team members to be capable of effective interpersonal communication, collaborative problem solving, conflict management, facilitation of team discussions, and so on. Hackman and Morris (1975) go so far as to argue that "the key to understanding ... group effectiveness ... lies in the on-going interaction processes which take place among group members while they are working on a task" (p. 46). Because the amount of interpersonal interactions inevitably increases when individuals are placed into work teams, it seems reasonable that the need for interpersonal competence is increased.

Problems from faulty interpersonal relations can originate from either extreme. At one extreme, team members may engage in destructive conflict or other dysfunctional patterns of interpersonal behavior that can disrupt the accomplishment of team tasks. At the other extreme, members can become "so oriented towards sharing warmth, support, and good feelings that the task itself is all but forgotten" (Hackman & Oldham, 1980, p. 199). Consequently, some optimal level of emphasis must be placed on both interpersonal- and task-orientations. This is not unlike the popular management interventions that have been based on this notion (e.g., Blake & Mouton, 1975).

According to Dyer (1984), we have very little systematic knowledge about which interpersonal skills are most desirable. All one frequently hears is simple generalized platitudes about the need for "team players." A goal of this study is to specify this domain of interpersonal team member capabilities in a way that will allow for pragmatic and meaningful operationalizations. In the sections that follow, three subcategories of interpersonal KSAs are identified which individual team members should possess in order to be effective team contributors: (1) conflict resolution KSAs; (2) collaborative problem solving KSAs; and (3) communication KSAs.

Conflict Resolution KSAs

The ability to effectively manage and resolve conflicts has been alluded to by many authors as an important interpersonal attribute for team members (e.g., Gladstein, 1984; Goodman, Ravlin & Argote, 1986; Levine & Moreland, 1990; McGrath & Kravitz, 1982; Saavedra, Earley & Van Dyne, 1993; Sundstrom et al., 1990). Team conflict often occurs when "the actions of one or more members of the group are incompatible with, and resisted by, one or more of the other group members" (Forsyth, 1990, p. 79). Conflicts arise when members believe their different goals cannot be achieved simultaneously (Levine & Moreland, 1990). Varney (1989) describes the essence of interpersonal team skills as the ability to manage conflict and disagreement at an individual level, and Eden (1985) identifies the ability to air and relieve interpersonal friction as one of the critical team-building functions.

Constructive conflict. Derr (1972) notes that early organizational thinkers felt all conflict was negative. Conflict was seen as a disruptive element which indicated that sound principles of management were not being applied. This lead to management systems to reduce conflict, such as specifying detailed job descriptions, creating clear chains of command, instituting specific rules and procedures to meet all contingencies, and so on.

However, conflict inevitably arises as a consequence of team functioning. As Forsyth (1990) states, "group conflict is as common as group harmony" (p. 79). Not only is conflict inevitable, but optimal team performance may require moderate levels of conflict. Without conflict, there may be no way to sense the need for change or draw attention to problem areas. Some researchers have concluded that moderate levels of conflict are evidence of healthy relationships among team members (e.g., Deutsch, 1973). McGregor (1960) suggested that conflict is not something more effective teams try to avoid. Conflict is not suppressed in order to maintain superficial sociability. Rather, when conflict occurs in effective teams, it tends to be constructive, civil, and not personally threatening.

Coser (1956) suggests that positive effects from conflict include reducing stress, venting opinions, communicating dissatisfaction, fostering innovation, and stabilizing relationships by removing dissociating elements. If conflict is not allowed and addressed, it can build to a point where serious negative consequences may occur, including hostility, reduced performance, and dissolution of the team (Levine & Moreland, 1990; Nemeth & Staw, 1989). Thus, the current view holds that conflict cannot, and should not, be avoided, but that when managed properly, conflict can even be advantageous (Pruitt, 1983; Rahim, 1983; Thomas, 1990).

In summary, conflict can have negative or positive effects, depending upon its nature and amount, and how it is addressed (Gersick & Davis-Sacks, 1990). Conflict is unproductive when disagreements reach an impasse and incapacitate a team, but constructive conflict allows teams to identify problems, develop solutions, and work through tradeoffs without alienating members. The objective should be to manage conflict to achieve optimal team performance. Thus, individual team members should possess:

R1. *The KSA to recognize and encourage desirable, but discourage undesirable, team conflict.*

Types and sources of conflict. Conflict can take many forms or emanate from many sources, including simple misunderstandings or miscommunications, structural or situational constraints, incompatible performance goals or rewards, requirements for joint decision making, differences in values, orientations, and objectives, or even such seemingly innocuous elements as physical design of a work area (Thomas, 1977).

These differences are important because they suggest different resolution strategies. Team members should be able to recognize the type of conflict and match it to the appropriate resolution strategy. For example, when conflict arises from a miscommunication, it can typically be resolved through questioning and listening techniques. When conflict arises from situational factors, it can often be resolved through rearranging the situation, such as when conflict over a distasteful task can be resolved by a rotating assignment schedule (Deutsch, 1973; Holmes & Miller, 1976; Thomas, 1977).

Conflict in joint decision making situations is generally rooted in the differences between parties in objectives, needs, and perceptions. Strategies for eliminating conflict may include collectively generating and evaluating alternative solutions, searching for common goals, developing subordinate goals, or using appropriate persuasion or interpersonal influence techniques (e.g., using open discussion and reason to better understand the position of others and to gain acceptance; Forsyth, 1990).

Personal differences in values, attitudes, or beliefs can be addressed by increasing openness for ideas and feelings and willingness to accept differences in others (Bass, 1980). A variety of techniques have been advanced to address this type of conflict, including sensitivity training to enhance interpersonal competence (Kaplan, 1986), individual counseling to assist those having trouble relating to others (Schein, 1969), and role analysis to help clarify expectations (Schaubroeck, Ganster, Sime & Ditman, 1993). Thus, individual team members should possess:

R2. *The KSA to recognize the type and source of conflict confronting the team and to implement an appropriate conflict resolution strategy.*

Negotiation or bargaining. Treated synonymously here, negotiation and bargaining traditionally refer to the exchange of offers, counteroffers, and concessions in order to reach a compromise between the objectives of two conflicting parties. However, they can also include collaboration to find solutions that satisfy the objectives of both parties (Bazerman, Magliozzi & Neale, 1985; Pruitt, 1971; Pruitt & Lewis, 1975). The former strategy is referred to as distributive (or win-lose) bargaining and the latter as integrative (or win-win) bargaining (Lewicki & Litterer, 1985). The differences between the strategies have important implications for conflict resolution in work teams.

Distributive bargaining is based on the assumption that differences are inescapable and one party's objectives can only be obtained at the expense of the other's (Thompson & Hastie, 1990). It is characterized as a strategy of politics, coercion, entrenchment, manipulation, and other influence tactics to obtain public acceptance of a settlement without necessarily obtaining private agreement. This strategy is most common where the goals of one side are perceived to be in fundamental opposition to the goals of the other, or where resources are limited, and each party seeks to maximize its own share (Lewicki & Litterer, 1985; Thomas, 1990).

Distributive bargaining can be destructive in nature. It often uses concealment rather than open sharing of information, which increases the likelihood of misunderstanding and hostility (Pruitt, 1971; Thompson & Hastie, 1990). It encourages perceptions of manipulation, deceptiveness, dishonesty, and mistrust, which can leave people bitter about the process and unwilling to work with each other in the future (Lewicki & Litterer, 1985). This is a disadvantage in teams because members must work together continuously.

Conversely, integrative bargaining is characterized by trust, openness, and an attempt to achieve the best solution for both parties (Lewicki & Litterer, 1985). It strives to obtain genuine resolution rather than tacit resolution. It treats negotiation as a win-win situation wherein cooperation can increase the outcomes for both parties (Bazerman et al., 1985; Pruitt, 1983; Thomas, 1990). Thompson and Hastie (1990) argue that many situations provide opportunities for integrative solutions, but people often settle for suboptimal agreements because they do not inquire as to the other party's interests. Integrative bargaining is collaborative; parties work to define the situation in terms of commonalities, to identify congruous goals, to learn about the potential for joint gain, and to develop creative solutions which satisfy both sides (Lewicki & Litterer, 1985; Pruitt & Lewis, 1975).

Thus, the integrative approach to negotiation would appear much more appropriate for team-based work systems, and team members should possess:

> **R3.** *The KSA to employ an integrative (win-win) negotiation strategy rather than the traditional distributive (win-lose) strategy.*

Collaborative Problem Solving KSAs

In work teams, the problem solving demands placed on members are much greater than in individual-based systems. Especially in self-managed teams, employees are expected not to ask supervisors to solve problems, but to take initiative to solve problems themselves. Even if teams are not self-managing, members are still often expected to participate in problem solving (Hackman, 1987).

Group participation in problem solving. In large part, the critical issue in collaborative problem solving is knowing when to use team participation. When a problem has only one correct solution, and the team selects its solution from those offered by members, then the problem is described as intellective

(Laughlin, 1980) or disjunctive (Steiner, 1972). With such problems, teams usually outperform the average of individuals because their performance is as good as the most capable member (Laughlin, 1980; McGrath & Kravitz, 1982). By involving members, multiple perspectives are brought to bear which may improve the diagnosis, the range of solutions considered, and the likelihood that incorrect solutions will be differentiated from correct ones (Laughlin & Ellis, 1986; Laughlin & McGlynn, 1986; Levine & Moreland, 1990). Team members should have the KSAs to recognize such problems, and then to involve team members in the process by encouraging the generation of alternative solutions, ensuring that all perspectives are considered, and adopting only solutions that are supported by satisfactory reasoning. Many recommendations are contained in the literature regarding steps to follow in group problem solving (e.g., Levine & Moreland, 1990).

Many problems facing work teams could be solved by an individual, such as the supervisor, in less time and with fewer disruptions. However, it may be desirable to involve the entire team for several reasons. For example, there may be greater acceptance of solutions, ownership of solutions, and commitment to successful implementation, as well as greater cohesiveness, interdependence, and alignment of objectives (Forsyth, 1990; McGrath, 1984). Also, participation may increase the availability of relevant information by placing decisions closer to the level of the problems (Guzzo, 1986; Guzzo & Waters, 1982; Janis, 1982; Miner, 1984; Tjosvold & Field, 1983).

Participation by all team members in every decision may not always be wise, however. The degree of participation should vary as a function of the characteristics of the decision, such as the significance of a wrong decision, importance of team acceptance, simplicity of the decision, availability of information, and capability of the members (Vroom & Jago, 1978). Potential drawbacks of participation include increased time requirements, lower quality decisions if members lack the ability to contribute, diminished individual responsibility, and the creation of an attitude of entitlement to involvement in all decisions (Yukl, 1981).

Thus, individual team members should possess:

> **R4.** *The KSA to identify situations requiring participative group problem solving and to utilize the proper degree and type of participation.*

Obstacles to Collaborative Problem Solving.   Research has shown that teams are not always better problem solvers than individuals (Libby, Trotman & Zimmer, 1987; Miner, 1984). Many factors can interfere with group problem solving, such as egocentrism, suboptimal compromises, inability to recognize better solutions, and domination by assertive or egocentric members (Falk & Johnson, 1977; Guzzo & Waters, 1982; Libby et al., 1987; Miner, 1984; Tjosvold & Field, 1983). One unique obstacle is the groupthink phenomenon (Janis, 1982). It occurs whenever the desire for team harmony and unanimity interfere with the ability to critically evaluate alternative solutions, thus leading to poor

quality decisions. Another unique obstacle in teams is conformity (Asch, 1956). Groups can exert strong forces on members to conform to majority opinions. Members can be inappropriately influenced to accept team judgments even when they contradict reason or objective reality. Team members should be able to help their teams recognize and avoid problems of groupthink and conformity.

Many techniques have been developed for avoiding obstacles to group problem solving. They usually involve restricting interactions so as to limit negative team influences while maximizing positive ones. One example is brainstorming which promotes creativity by separating idea generation from evaluation. It encourages new ideas by not allowing dampening criticism (Bouchard, Barsaloux & Drauden, 1974; Diehl & Stroebe, 1991; Philipsen, Mulac & Dietrich, 1979). Another example is the nominal group technique, where ideas are generated privately and team meetings only involve presenting and clarifying ideas. Decisions are made by private voting rather than trying to publicly resolve differences (Delbecq, Van de Ven & Gustafson, 1975; Rogelberg, Barnes-Farrell & Lowe, 1992). The technique is used when there are poor relations in the team, or the topic is personal or emotional. There are also many other techniques to improve group problem solving (e.g., Delphi technique, alternative group voting strategies, Stepladder technique, etc.; Levine & Moreland, 1990). Although it is not important that team members know the names of these techniques, it is desirable that they be able to utilize the underlying principles (e.g., properly structure team meetings, separate idea generation from evaluation, etc.).

Thus, individual team members should possess:

> **R5.** *The KSA to recognize the obstacles to collaborative group problem solving and to implement appropriate corrective actions.*

Communication KSAs

Effective communication has long been known to influence important team processes and outcomes (e.g., Leavitt, 1951), and it is an explicit component of many current models of work team performance (e.g., Campion, Medsker & Higgs, 1993; Gladstein, 1984; Pearce & Ravlin, 1987). However, communicating effectively is more than simply the ability to converse with others. The sections below explain the KSAs needed for effective communication in teams.

Communication networks. The arrangement of communication networks or channels among members can exert a powerful influence upon team performance.

Many types of networks have been investigated to determine their effects on team functioning, including (from most to least centralized): wheel, Y, chain, circle, and completely connected configuration. These networks differ in ways relevant to team performance, including speed and accuracy of information transmission (e.g., decentralized channels create fewer bottlenecks), extent information is distributed among members (e.g., members may be better

informed in decentralized channels), and degree of member satisfaction with the channels (e.g., higher for decentralized) (Shaw, 1981).

Other authors encourage decentralized channels because they enable the exchange of information about the work in an open, timely, and efficient manner (Kinlaw 1991; Lawler, 1986; Nieva, Fleishman & Rieck, 1978). Even though the design of a team's communication network is not always under the control of the members, it is desirable that members have knowledge of these networks so they can implement them where possible. Thus, members should possess:

> R6.   *The KSA to understand communication networks, and to utilize decentralized networks to enhance communication where possible.*

Communication style. The communication style of effective teams is informal, relaxed, comfortable, and with no obvious tensions (Argyris, 1966; Likert, 1961; McGregor, 1960). Members are open and receptive to information, ideas, and feelings of others, and they are willing to ask questions and consider issues from the perspective of others. In effective teams, members use the communication process to ensure that all relevant and important issues are brought before the team and not ignored (Likert, 1961). This suggests an open and supportive communication style.

It has been argued that the ability to develop an open communication style is a direct function of personal relationships (Jackson, 1988; Kinlaw, 1991; Larson & LaFasto, 1989). Members will have an open communication style to the degree they can structure messages to be consonant with their relationships, and good communication can in turn strengthen relationships (Gudykunst, 1991; Whetten & Cameron, 1991; Wiemann & Backlund, 1980).

Several basic principles may be useful to operationalize this open and supportive communication style (Whetten & Cameron, 1991). First, it is behavior- or event-oriented, not person-oriented. That is, messages are less likely to elicit defensive reactions when they focus on characteristics of the problem rather than the individual, are specific rather than general, are descriptive rather than evaluative, and make comparisons to objective rather than subjective standards (Gibb, 1961). Second, open and supportive communication is based on congruence between what the communicator feels and says. Such congruence leads to a spontaneous matching of verbal and nonverbal messages, thus enhancing communication effectiveness (Dyer, 1972; Rogers, 1961). Third, open and supportive communication validates individuals. Messages that arouse negative feelings about self-worth, identity, and relatedness to others tend to invalidate. Messages are especially invalidating when they convey superiority, rigidity of position, or indifference towards the recipient (Driskell, Olmstead & Salas, 1993).

Fourth, open and supportive communication is conjunctive rather than disjunctive. Individuals communicate conjunctively by ensuring that everyone has equal opportunity to speak, using appropriate timing in conversations, and ensuring that topics are not disconnected or monopolized (Wiemann & Backlund, 1980). Empirical evidence exists that conjunctive as opposed to

disjunctive communicators are judged as more competent (Wiemann, 1977). Fifth, open and supportive communication is owned, not disowned. Owning communication refers to the act of taking responsibility for one's statements and acknowledging that the source of an idea is oneself.

Thus, individual team members should possess:

> **R7.** *The KSA to communicate openly and supportively, that is, to send messages which are: (1) behavior- or event-oriented; (2) congruent; (3) validating; (4) conjunctive; and (5) owned.*

Listening skills. Listening is a core component of communication and a distinguishing feature of effective teams (Luthans & Larsen, 1986). Listening provides a feedback loop. It reduces the distortion between what is said and what is understood (Ashford, 1986). It is thus key to generating accurate, task relevant information, which is so important to teams (Kinlaw, 1991).

The first component of good listening is to withhold judgment and listen nonevaluatively. This is difficult because people tend to evaluate what they hear very rapidly (Fiske & Neuberg, 1990), partly by adding mental comments to the message (e.g., whether they believe the communicator to be truthful or dishonest, accurate or inaccurate, etc.; Rogers, 1961).

Listeners can take an active role to improve their understanding of messages by probing, reflecting, and deflecting. With probing, the listener encourages the speaker to elaborate, provide additional information, or clarify the meaning (Whetten & Cameron, 1991). With reflecting, the listener mirrors back to the communicator the message as it was heard, thus demonstrating that the listener is attentive, understands the message, and would like to hear more. With deflecting, the listener helps the communicator better understand a problem by relating analogies, examples, and so on. Deflecting can also be used when a comparison, reassurance, or a show of compassion is needed, or to avoid an uncomfortable situation (Whetten & Cameron, 1991).

Thus, individual team members should possess:

> **R8.** *The KSA to listen nonevaluatively and to appropriately use active listening techniques.*

Nonverbal communication. Nonverbal communication is very important (Driskell et al., 1993; McCaskey, 1979; Mullen, Salas & Driskell, 1989; Ridgeway, 1987; Ridgeway & Diekema, 1989; Sielski, 1979; Williams, 1989), and nonverbal communication can take precedents over verbal communication in certain contexts (DePaulo, Rosenthal, Eisenstat, Rogers & Finkelstein, 1978; Harrison, Hwalek, Raney & Fritz, 1978). There are many types of nonverbal communication, including paralinguistics (e.g., vocal features such as loudness, pitch, rate, and hesitations), kinesics (e.g., gestures, facial expressions, and body postures), haptics (e.g., touch, such as a handshake, pat on back, and arm around shoulder), chronemics (e.g., time, such as making people wait), iconics (e.g., physical objects, such as size of desk or display of trophies), proxemics (e.g., personal space), and dress (e.g., clothing and physical appearance).

Team members should recognize that nonverbal messages either reinforce or undermine verbal messages (Birdwhistell, 1970; Cooper, 1979; Harrison, 1974). However, intentionally sending nonverbal messages can be difficult because they are often at an unconscious level. To ensure that nonverbal messages enhance communication, members should strive for consonance between their underlying sentiments and their open disclosures (Buck, 1984). Efforts to control nonverbal expressions can create impressions of deception. Members should also increase awareness of nonverbal messages of others (Birdwhistell, 1970). This includes realizing that others may fail to say precisely what they think (Harrison, 1974; Sielski, 1979), and they may be incapable of expressing their thoughts verbally and have no choice but to use nonverbal modes (Jackson, 1988). Lastly, nonverbal cues may allow team members to assess the emotional state of others (Buck, 1984).

Thus, individual team members should possess:

> **R9.** *The KSA to maximize consonance between nonverbal and verbal messages, and to recognize and interpret the nonverbal messages of others.*

Small talk and ritual greetings. Small talk consists of conversations with team members that appear to have no productive value. Nevertheless, such conversations strengthen interpersonal relationships among team members (Jackson, 1988). Likewise, ritual greetings seem inconsequential, but they serve the function of acknowledging the presence and value of others, and thus also strengthen relations in the team. While small talk and ritual greetings do not require high level skills, they are not possessed by all potential team members and failure to perform them can inhibit team functioning (Jackson, 1988). Thus, individual team members should possess:

> **R10.** *The KSA to engage in small talk and ritual greetings, and a recognition of their importance.*

Self-management KSAs

When organizations implement work teams, the teams are often given some degree of self-management (Cannon-Bowers, Oser & Flanagan, 1992; Hackman, 1986). This means the team has significant control over the direction and execution of its tasks (Goodman, Devadas & Hughson, 1988). In some popular interventions such as sociotechnical systems, specific steps are taken to give teams considerable amounts of autonomy (Cummings, 1978). In team environments, effective management may be self-management (Manz & Sims, 1987).

With self-management, team members must possess the KSAs to perform some essential managerial activities. Two subcategories of self-management KSAs are identified below which individual team members should possess in order to contribute to the team's success in directing itself: (1) goal setting and performance management KSAs; and (2) planning and task coordination KSAs.

Goal Setting and Performance Management KSAs

Specific, challenging, and accepted goals. Goal setting is a well-documented individual-level performance management technique (Mento, Steel & Karren, 1987). Likewise, a clearly defined mission or purpose is critical to team effectiveness according to both the conceptual (Gladstein, 1984; Hackman, 1987; Larson & Schaumann, 1993; Shea & Guzzo, 1987; Sundstrom et al., 1990) and empirical literatures (Buller & Bell, 1986; Koch, 1979; Pearson, 1987; Pritchard, Jones, Roth, Steubing & Ekeberg, 1988; Weingart, 1992; Weldon, Jehn & Pradhan, 1991).

An appropriate level of goal difficulty is important for team performance (Weingart, 1992). It has been demonstrated that team success follows from the proper choice of task difficulty, and failure follows from the improper choice (Kukla, 1975; Zander & Newcomb, 1967). Team goals must be challenging, but attainable (Larson & LaFasto, 1989; Likert, 1961).

Goal acceptance among team members is another important consideration. Acceptance may be more important in a team than in an individual setting because there can be conflict or disagreement between team and individual goals. Further, not every member may perceive the team's goals the same way. Lack of goal unity or clarity reduces effectiveness (Larson & LaFasto, 1989). Congruence between individual and team goals can be attained if they are the same, highly linked, or can be pursued simultaneously (Gowen, 1986; Matsui, Kakuyama & Onglatco, 1987; Mitchell & Silver, 1990).

One way to enhance goal acceptance is to use participation for setting goals (Matsui et al., 1987; Pearson, 1987). This not only enhances acceptance, but it may increase congruence between individual and team goals (Erez, 1986; Mackie & Goethals, 1987). It may also lead to better quality goals, and greater satisfaction with the process (Levine & Moreland, 1990).

Thus, individual team members should possess:

> **R11.** *The KSA to help establish specific, challenging, and accepted team goals.*

Performance monitoring and feedback. Effective teams are aware of their own performance and progress toward goals (Gaddy & Wachtel, 1992). They frequently evaluate their progress and make adjustments in goals or activities (Goodman & Dean, 1982; Weingart, 1992). Teams are dynamic and evolve over time, so the long-term viability of teams requires adequate performance self-assessment and feedback mechanisms to allow the team to make adjustments as needed (Goodman et al., 1988).

Individual team member performance must also be monitored in order to avoid social-loafing or free-riding (Albanese & Van Fleet, 1985; Harkins, 1987; Kerr & Bruun, 1983; Latane, Williams & Harkins, 1979; Matsui et al., 1987). This is the tendency of people to expend less effort when working on a team as opposed to working alone. To mitigate any negative effects, members must be able to differentiate their contributions from those of other members and

perceive a link between their performance and team success (Levine & Moreland, 1990).

Thus, individual team members should possess:

> **R12.** *The KSA to monitor, evaluate, and provide feedback on both overall team performance and individual team member performance.*

Planning and Task Coordination KSAs

Activity coordination. Integrating the activities of team members requires coordination and synchronization (Bass, 1980; Larson & Schaumann, 1993), thus the coordination of team activities is central to self-management (Cummings, 1978; Goodman et al., 1988; Hackman, 1987; Nieva et al., 1978; Pearce & Ravlin, 1987; Shea & Guzzo, 1987). The capacity to plan and coordinate tasks and information has been identified as an important determinant of team effectiveness (Glickman, Zimmer, Montero, Guerette, Campbell & Morgan, 1987; Oser, McCallum, Salas & Morgan, 1989; Weingart, 1992). The amount of coordination needed depends on the task interdependence among members (Saavedra et al., 1993). As interdependence increases, the impact of coordination on team output increases (Cheng, 1983). The required coordination among members should be stressed during team training (Davis, Gaddy, Turney & Koontz, 1986; Dyer, 1984).

Thus, individual team members should possess:

> **R13.** *The KSA to plan and coordinate activities, information, and task interdependencies among team members.*

Task and role expectations. Effective teams have clear expectations for the tasks and roles of team members, and planning and control over internal work processes is an element in some models of team effectiveness (Gladstein, 1984). Effective teams may also have mechanisms for clarifying role expectations (Eden, 1985).

A related issue is workload sharing and equitable work distribution. Few studies have investigated the effects of workload distribution strategies (Dyer, 1984), but motivation theories suggest that equity must be considered when making workload assignments in a team (Adams, 1965; Leventhal, 1980).

Thus, individual team members should possess:

> **R14.** *The KSA to help establish task and role expectations of individual team members, and to ensure proper balancing of workload in the team.*

Implications of Teamwork KSAs for HR Management

The second purpose of the study is to consider the implications of these teamwork KSAs for HR management. In the sections below, each of the traditional HR systems is examined. First, the potential implications of the

Table 2. The Implications of Teamwork KSAs for the Design of HR Systems

SELECTION
- Selection procedures for jobs in team environments should assess teamwork KSAs.
- Selection procedures assessing teamwork KSAs may be more valid than those assessing teamwork personality traits.
- Employment tests assessing teamwork KSAs may be valid predictors of teamwork-related job performance.
- Teamwork KSAs may be measurable by other selection procedures, such as interviews, assessment centers, and biodata.
- Recruiting for teams should emphasize the importance of teamwork KSA requirements.
- Team staffing decisions should also consider differences in employee preferences for working in groups.

TRAINING
- Organizations with team environments should train teamwork KSAs as part of their development programs.
- There are a broad variety of potentially useful approaches to the training of teamwork KSAs.
- Managers of teams should also be trained in teamwork KSAs, and in how to develop these KSAs in employees.

PERFORMANCE APPRAISAL
- In order to motivate teamwork in organizations with team environments, performance appraisals should be modified to assess and reward the behavioral and performance indicators of the teamwork KSAs.
- An organization-specific job analysis may be needed to identify the behavioral or performance indicators of the teamwork KSAs.

CAREER DEVELOPMENT
- Promotion criteria may need to be modified to consider teamwork KSAs and teamwork contributions.
- Career planning systems may need to consider the opportunities to develop teamwork KSAs that jobs offer.
- Teamwork KSAs may be needed for proper socialization and, in turn, be enhanced by socialization.

COMPENSATION
- Compensation systems in organizations with team environments should include compensable factors reflecting teamwork KSAs.
- Pay-for-skills programs in team environments should also consider teamwork KSAs.

JOB ANALYSIS
- Job analysis procedures should include measures of teamwork KSAs.

teamwork KSAs for the modification or development of the system is described (and summarized in Table 2). Second, research issues that arise from the implications are discussed. As will be apparent, some implications are fairly straightforward, whereas others may require future research to clarify.

Personnel Selection and Staffing

   Implications.   The identification of additional KSAs required by jobs is obviously relevant to the development of selection systems. The intentional focus in this study on KSAs rather than attributes such as personality was because of their history of superior predictive validity. Part of this validity advantage is due to the fact that measures of KSAs are not readily fakable.

That is, questions assessing KSAs have correct answers that cannot be easily identified by candidates without an adequate level of the KSA, while questions assessing personality attributes are often quite transparent. For example, candidates can merely describe themselves as being good team players even if they are not, while it is much more difficult to identify correct group problem solving techniques if they do not have that knowledge. Another reason personality has lower validity is that most work settings are "powerful situations" (Herriot, 1981) in that the proper behavior is clearly prescribed. Thus, most people will adjust their behavior regardless of their personality predispositions.

At first thought, it would seem easy to include measures of teamwork KSAs in selection systems. This is not simple, however, because most available KSA-oriented employment selection instruments focus on basic learning KSAs (e.g., math, language, perceptual, etc.) or specific technical KSAs (e.g., mechanical, electrical, etc.). The authors could not locate any measures of teamwork KSAs either in commercial sources or published research literature.

Therefore, to illustrate the value of teamwork KSAs for selection, the authors developed an employment test of these KSAs using standard test construction procedures (Stevens & Campion, 1994). The resulting 35-item, multiple-choice test was then validated in two studies. Findings showed substantial criterion-related validities against both supervisor and peer ratings of job performance, with some correlations exceeding .50. The test was also able to incrementally predict job performance beyond the level of prediction from a large battery of traditional employment aptitude tests. These initial findings provided encouraging support for the value of the teamwork KSAs and a selection test based upon them. Table 3 shows example items from the test.

Aside from written tests, there may be other ways teamwork KSAs could be measured for purposes of selection. For example, interviews may be especially suited to measuring social and interpersonal attributes (e.g., Arvey & Campion, 1982; Schmitt, 1976). There is some evidence that a structured interview specifically designed to measure social (i.e, nontechnical) KSAs can have validity against job performance and predict incrementally beyond traditional employment tests (Campion, Campion & Hudson, 1993).

Assessment center techniques might also lend themselves to measuring teamwork KSAs. Group exercises have been used to measure leadership and other social skills with good success (Gaugler, Rosenthal, Thornton & Benston, 1987). It is likely that existing team exercises, such as group problem solving tasks, could be modified to also score teamwork KSAs. Or new exercises could be developed, such as conflict resolution or goal setting tasks, to elicit and assess teamwork KSAs.

Selection techniques using biodata may be another way to measure teamwork KSAs. Many items in biodata instruments reflect previous life experiences of a social nature (Mumford & Stokes, 1992), and recruiters interpret biodata information on applications and resumes as reflecting attributes such as interpersonal skills (Brown & Campion, 1993). A biodata measure developed to focus on teamwork KSAs might include items on

Table 3.   Example Items from the Teamwork-KSA Test

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1. Suppose that you find yourself in an argument with several co-workers about who should do a very disagreeable, but routine task. Which of the following would likely be the most effective way to resolve this situation?
    - A.   Have your supervisor decide, because this would avoid any personal bias.
    - *B.   Arrange for a rotating schedule so everyone shares the chore.
    - C.   Let the workers who show up earliest choose on a first-come, first-served basis.
    - D.   Randomly assign a person to do the task and don't change it.
2. Your team wants to improve the quality and flow of the conversations among its members. Your team should:
    - *A.   use comments that build upon and connect to what others have said.
    - B.   set up a specific order for everyone to speak and then follow it.
    - C.   let team members with more to say determine the direction and topic of conversation.
    - D.   do all of the above.
3. Suppose you are presented with the following types of goals. You are asked to pick one for your team to work on. Which would you choose?
    - A.   An easy goal to ensure the team reaches it, thus creating a feeling of success.
    - B.   A goal of average difficulty so the team will be somewhat challenged, but successful without too much effort.
    - *C.   A difficult and challenging goal that will stretch the team to perform at a high level, but attainable so that effort will not be seen as futile.
    - D.   A very difficult, or even impossible goal so that even if the team falls short, it will at least have a very high target to aim for.

Note: * Correct answers.

teamwork in previous jobs, team experiences in school (e.g., college clubs, class projects), and recreational activities of a team nature (e.g., sports teams and social groups).

Finally, teamwork KSAs may have implications for recruiting. Recruiting for teams should clearly communicate the importance of these requirements. This makes sense from the perspective of providing realistic job previews to reduce turnover (Wanous, 1989), and it makes sense based on the importance of preferences for job characteristics to increase job satisfaction (Hackman & Oldham, 1980; Schneider, 1987). There is evidence that members' preferences for teamwork are related to effectiveness (Campion, Medsker & Higgs, 1993).

Research Issues.   As implied above, research is clearly needed on the development and validation of selection procedures to measure teamwork KSAs. In addition, there are many selection-related research issues that emerge from the team literature itself. Most of these issues are with regard to the staffing of the team as a single unit as opposed to hiring individuals.

Some issues result from the common recommendation that team membership should be heterogeneous (e.g., Goodman et al., 1986; Pearce & Ravlin, 1987). This recommendation derives largely from lab studies showing heterogeneity is related to some types of group creativity and problem solving (Levine & Moreland, 1990; McGrath & Kravitz, 1982). But it is also known that diversity can sometimes hinder organizational performance (Bettenhausen, 1991). Thus, there are several ambiguities that need to be addressed in future research.

First, does this recommendation apply to KSAs, or only to other attributes (e.g., personalities, experience, viewpoints, etc.)? Some people specifically recommend that teams be heterogeneous with regard to abilities (e.g., Pearce & Ravlin, 1987), while others recommend homogeneity in that more abilities are better than less (e.g., Guzzo & Shea, 1992; Tannenbaum, Beard & Salas, 1992).

Second, does this recommendation refer to level or type of KSA? In other words, a team could be heterogeneous because some members have higher skill levels than others, or because members have different types of skills. It is unlikely that having some lower skilled members would be an advantage, and there is evidence that this form of heterogeneity relates to lower effectiveness (Campion, Medsker & Higgs, 1993). Conversely, having a variety of skills on a team, especially if they are complementary, would seem valuable.

Third, does the task moderate this recommendation? Studies have shown that team performance is as good as that of the most capable member with disjunctive tasks, no better than the least capable member with conjunctive tasks, and determined by the average member in additive tasks (McGrath & Kravitz, 1982; Steiner, 1972). Thus, heterogeneity would seem most advantageous with disjunctive tasks and least with conjunctive tasks.

There may be other research issues with regard to heterogeneity as well. Perhaps these research unknowns are why many authors recommend a balance between heterogeneity and homogeneity in team membership (e.g., Guzzo & Shea, 1992; Hackman & Oldham, 1980; Sundstrom et al., 1990).

Other issues evolve around differences between teamwork KSAs and technical KSAs. For example, what level of teamwork versus technical KSAs are needed? It has been noted that interpersonal relations must be above some minimum level before teams can perform (Salas, Dickinson, Converse & Tannenbaum, 1992). Observations like this may have led to the recommendation that teams be staffed as high as possible on technical KSAs, and at least moderate on interpersonal KSAs (Guzzo & Shea, 1992; Hackman & Oldham, 1980). However, the common advice in personnel selection research is that a top-down or rank-order strategy which hires the highest level of skills possible, is always better than a cut-score strategy which settles for moderate skill levels (Society of Industrial and Organizational Psychology, 1987). So it is unclear if recruiters should adopt a maximizing or a minimum-competency strategy regarding teamwork KSAs.

A related issue is whether employees with high teamwork KSAs should be spread out across teams or concentrated in a few teams. They should probably be spread out if tasks are disjunctive, because performance of each team is determined by the best member. But they should probably be concentrated if tasks are conjunctive, because performance of each team is determined by the worst member. Also, with conjunctive tasks, there can be performance synergies when a team is staffed only with high ability members (Tziner & Eden, 1985). It is for future research to determine whether these findings based on technical KSAs will generalize to teamwork KSAs.

Training

Implications. If teamwork KSAs are important to job performance, then HR managers must consider whether such skills can be trained and, if so, how they can be trained. The large literature on team building is relevant to these issues. Many team building interventions focus on aspects of team functioning that are related to the teamwork KSAs described in this study. For example, a recent review of this literature divided the interventions into four approaches (Tannenbaum et al., 1992)—goal setting, interpersonal, role, and problem solving—which are similar to the teamwork KSA categories (Table 1). Thus, these interventions could be viewed as training programs on teamwork KSAs. Summarizing across the reviews in the area (e.g., Buller, 1986; De Meuse & Liebowitz, 1981; Nicholas, 1982; Tannenbaum et al., 1992; Woodman & Sherwood, 1980), the amount of evidence for the effectiveness of this training appears positive despite the methodological limitations that plague the research. So it appears that teamwork KSAs can be trained.

Regarding how such training should be conducted, there is substantial guidance on training teams in the human factors and military literatures (Dyer, 1984; Salas et al., 1992; Swezey & Salas, 1992). Because these topics are thoroughly addressed in the cited sources, they will not be reviewed here.

Managers over teams also need to be trained in teamwork KSAs, regardless of whether the teams are manager-led or self-managed. The KSAs are needed for interacting with employee teams and for participating on management teams. It has been noted that managers of teams, especially autonomous work teams, need to develop the employees (Cummings, 1978; Hackman & Oldham, 1980; Manz & Sims, 1987). Thus, training must not only ensure that managers possess teamwork KSAs, but that they know how to train these KSAs in employees.

Research Issues. Many areas for future research are addressed in the reviews of the team training literature noted above. However, one additional topic is how teamwork KSAs can be trained without formal off-the-job programs. It has been observed that teams influence the acquisition of KSAs through instruction, feedback, and modeling on the job (Hackman, 1992). This observation seems to refer to technical KSAs and to norms and beliefs, without specifically considering teamwork KSAs as conceptualized in the present study. There is some evidence as to the importance of work experience to management development (Howard & Bray, 1988; McCall, Lombardo & Morrison, 1988), and the proactive use of work experience through job rotation has been related to the acquisition of interpersonal and communication skills (Campion, Cheraskin & Stevens, 1993). But no research has directly examined the process by which experience on work teams develops teamwork KSAs in its members, and whether this is an efficient way to develop these KSAs.

Performance Appraisal

Implications. Performance appraisal systems in organizations with teams should be modified to reflect teamwork KSAs. If organizations wish to motivate

teamwork, they must assess and reward teamwork by incorporating it into their appraisal systems. Even if their appraisals included a teamwork component in the past, the implementation of formal work teams should increase the prominence of teamwork in the appraisals. An organization-specific job analysis should be conducted to determine the precise nature of the behavioral and performance ramifications of the teamwork KSAs to be included in the appraisal form. As an illustration, the categories or subcategories of teamwork KSAs in Table 1 could be translated into critical work behaviors or performance dimensions to be used in such a form.

This modification of performance appraisal systems would not only reward good team players, but it would punish poor ones. In the past, poor team players were often tolerated because teamwork contributions were not explicitly included in the appraisal. Modifying the appraisal will prevent considering teamwork as an extra-role behavior (cf. Organ, 1988).

Research Issues. Incorporating teamwork into performance appraisals creates several research issues. First, does it affect the dimensionality of job performance? Is teamwork a separate dimension in terms of statistical independence or in terms of its usefulness to managing performance? And how much of a contribution does it make to the total judgment of job performance? Second, are judgments of teamwork more influenced by cognitive distortions found in appraisals (e.g., halo, personal liking, or memory effects; Murphy & Cleveland, 1991)? Third, what is the best way to measure teamwork performance of individuals? Can we rely on supervisor judgments, or are they poor judges of teamwork because they are given deference by subordinate team members? Are peer appraisals more useful for measuring teamwork? Fourth, how is individual teamwork performance linked to the performance of the entire team?

Finally, what does this mean for the design of job performance measures used as criteria in teamwork research? The distinction between teamwork and technical components of job performance was useful in the research on testing teamwork KSAs described earlier (Stevens & Campion, 1994). The teamwork test predicted teamwork performance better than the traditional aptitude tests, while the reverse was true for technical performance. Thus, appraisal measures used in research should perhaps distinguish teamwork from other aspects of job performance.

Career Development

Implications. With more organizations using teams, teamwork KSAs may become more important to both internal and external career mobility. The management of career systems in organizations may need to consider the teamwork KSAs of upwardly mobile employees. This may lead to a shift in promotion criteria from the sole emphasis on individual achievement (Markham, Harlan & Hackett, 1987) to more of an emphasis on teamwork contributions. Likewise, career planning should consider opportunities to develop teamwork KSAs that various jobs offer (Campion, Cheraskin & Stevens, 1993; McCall et al., 1988).

Teamwork KSAs may also be relevant to socialization. As an interpersonal adjustment process (Schein, 1978), socialization might be enhanced by the possession of teamwork KSAs. For example, the communications-related KSAs would seem especially important to sense-making (Louis, 1980) and information acquisition (Feldman, 1981; Ostroff & Kozlowski, 1992) components of socialization. Conversely, teams may enhance socialization by developing these KSAs and by increasing the frequency of interpersonal interactions.

Research Issues.   Future research could examine the importance of teamwork KSAs to promotion criteria, career paths, and mobility opportunities. Research could also examine the extent teamwork KSAs predict performance and adjustment in subsequent assignments. Perhaps teamwork KSAs will become more prominent in the profiles of successful managers (cf. Howard & Bray, 1988; Mintzberg, 1973).

Compensation

Implications.   Most compensable factors in job evaluation systems reflect mental ability requirements of the jobs either directly or indirectly (Campion & Berger, 1990). Thus, if teams increase the KSA requirements of jobs, they should be reflected in job evaluation systems. Some current systems already include compensable factors that appear to reflect social components of job performance (e.g., social skill, capacity for getting along with others, contact with others, etc.; Hills, 1987). But teamwork KSA requirements should be represented more directly by new compensable factors relating to teamwork skills, teamwork responsibilities, and teamwork-related effort.

Teamwork KSAs may also influence compensation through "pay for skills" programs that frequently accompany team-based interventions (Pasmore et al., 1982; Walton, 1972). These programs focus more on technical skills, but perhaps the increased requirements for teamwork KSAs should also be included.

Research Issues.   Incorporating teamwork KSAs as a determinant of compensation creates a number of research issues. For example, how much should compensable factors on teamwork KSAs be worth? Should they be worth more on some jobs or in some companies? Is it important to learn about the supply of teamwork KSAs in the labor market? Will KSAs be hard to obtain? Will there be increasing competition for these KSAs as more companies implement teamwork programs? Finally, from a bottom line perspective, will teamwork KSAs consequently increase overall compensation costs to organizations?

Job Analysis

Implications.   If jobs change their KSA requirements, then job analyses must consider these changes. Otherwise, these KSAs will not be reflected in the subsequent HR systems that are based on job analyses. Current approaches to job analysis do not give much attention to teamwork KSAs. For example, the *Dictionary of Occupational Titles* (U.S. Department of Labor, 1972) considers "people" requirements of jobs, but does not address the specific

teamwork KSAs. Likewise, recent reviews of the literature mention some of the components of teamwork such as communication and coordination (e.g., Harvey, 1991), but give little attention to the other teamwork KSAs. Thus, job analysis systems may need to be revised. Teamwork KSAs are more likely to emerge with conventional approaches to job analysis because of their unstructured nature (e.g., interviews), but structured approaches (e.g., questionnaires) will have to be modified to query about these KSAs.

Research Issues. The emergence of new KSAs means that the dimensionality of work is changing. If the teamwork trend continues, then the social aspects of work will become more important. Thus, theoretically oriented research might attempt to capture and understand these changes in the structure of work. Practically oriented research might focus on the modification of our measurement instruments. For example, research needs to determine which specific behaviors and KSAs should be included in job analysis questionnaires. The teamwork KSAs derived in the present study may provide a starting point.

Conclusion

The authors concur with the previous article reviewing the group literature in the *Journal of Management*. It stated that the group literature, "more than many other academic literatures, has the wonderful opportunity to address the practical concerns of management" (Bettenhausen, 1991, p. 371). The present article drew on the literature to address the needs of one area of management— the human resources systems and practices—needed in the team-oriented environments of organizations today. It is hoped that the review offers some guidance to managerial practice and teaching, as well as stimulates future research and scholarship on team management in organizations.

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