

UNCLASSIFIED

Defense Technical Information Center
Compilation Part Notice

ADP010355

TITLE: Officer Selection in the 21st Century

DISTRIBUTION: Approved for public release, distribution unlimited

This paper is part of the following report:

TITLE: Officer Selection [la Selection des
officiers]

To order the complete compilation report, use: ADA387133

The component part is provided here to allow users access to individually authored sections of proceedings, annals, symposia, ect. However, the component should be considered within the context of the overall compilation report and not as a stand-alone technical report.

The following component part numbers comprise the compilation report:

ADP010347 thru ADP010377

UNCLASSIFIED

Officer Selection in the 21st Century

Michael G. Rumsey
 U.S. Army Research Institute
 5001 Eisenhower Avenue
 Alexandria, VA, 22333-5600
 USA

Laura A. Ford, Roy C. Campbell, John P. Campbell, Deirdre J. Knapp, and Clinton B. Walker
 Human Resources Research Organization
 66 Canal Center Plaza, Suite 400
 Alexandria, VA, 22314-1591, USA

Summary

A key requirement in designing selection systems is determining the attributes of people that underlie their successful performance on the job of interest. The present paper considers junior officer attributes which may be needed for successful performance in the 21st century. This paper examines the application of a methodology and findings from a project examining future attributes needed for noncommissioned officers. It examines projected future changes in the world and the Army environment and considers how these may affect future officer job demands. It then draws inferences about the implications of these changes for the following attributes: general cognitive ability, integrity, achievement motivation, judgment and decision making, social competence, adaptability, communication ability, emotional stability, and physical fitness. While the available information is judged to support the importance of these attributes for the period 2000-2025, the limitations of such information are emphasized. A more thorough analysis using the approach followed in the noncommissioned officer project (*NCO21*) is recommended.

Introduction

Although there are many components of a successful selection system, perhaps the most fundamental is that the selection criteria are aligned with the job for which the individual is being selected. As we look at the dramatic changes in geopolitics, technology, and U.S. Army missions that have occurred within the last 20 years and are projected to occur over the next 25 years, it is reasonable to ask whether the components of the Army officer job can be viewed as stable over that time and whether it is time to

reconsider the selection criteria that are currently being used.

How are we to answer these questions? How are we to determine whether it is time to change current selection criteria, and, if so, how are we to determine what the new criteria are to be? In theory, there is a standard set of industrial-organizational principles for generating a valid set of selection measures: analyze a job to identify its major components, determine what knowledges, skills, and attributes (KSAs) are needed to be successful in this job, build measures of these KSAs, and link these measures to measures of job performance. If this process results in the identification of measures which can add substantial incremental validity to the current selection criteria, then one must seriously consider changing these criteria.

While the application of these principles is straightforward when the job of interest is one that is currently being performed, it is not so straightforward when the relevant job is one that is projected to exist in the future. We cannot, in fact, ignore the future if we are to ensure that whatever conclusions we reach do not become obsolete shortly after we reach them. The changes that are occurring are so dramatic that if we do not in some way take them into account, either to identify KSAs that are not now currently important but are projected to be important soon, or to determine that the KSAs that are now important will remain so, then we risk having a seriously deficient selection system.

The problem we face, then, is how to build an officer selection system for the future. We are currently conducting a project addressing a very similar question: how to build an NCO

promotion system for the future. We believe that many of the procedures used in this project, *21st Century NCOs (NCO21)*, apply in varying degrees to the officer selection problem, and will in this paper discuss the manner in which we think they apply. We will also discuss findings from this project and others and what relevance we think they have to the issue of officer selection.

If we are to design a selection system for the future, it must be keyed to future job demands. Most job analytic techniques are designed to describe present, not future jobs. However, Schneider and Konz (1989) have developed a technique known as strategic job analysis, which identifies job components based on current job analysis, then makes projections concerning future changes and examines how these changes might impact upon these components. Much of this paper will discuss what is now known about officer jobs, what we have learned about future changes, and how these changes might impact upon future officer jobs. However, since we have not formally conducted a strategic job analysis on officers, this discussion must be recognized as speculative and preliminary. Officer selection is too important to rest upon such speculation—it is our recommendation that a formal job analysis be done to generate more definitive conclusions.

We must recognize at the outset that there is no single officer job. Officer job demands vary by specialty and by rank. We will narrow our inquiry by focusing primarily on entry-level lieutenant requirements which are reasonably common across specialties. A reasonable demand on a selection system is that it identify those who will perform effectively in their first job assignment. It is incumbent upon the promotion system to then identify who among these will perform well at higher levels. Of course, since the Army promotes from within, one wants to ensure that among those who are selected there are a sufficient number who have the capability to perform successfully at these levels. Thus, while performance at the junior level is the primary concern, it is not the sole concern.

An earlier paper (Rumsey, 1998) reviewed a variety of analyses of junior officer jobs and found that officer demands were generally identified based on either function or process. The following functions emerged as particularly important: “ 1) perform technical and

tactical tasks, 2) supervise subordinates, 3) develop subordinates, and 4) perform managerial and administrative tasks (p. 2).” The processes identified as needed to perform these functions were: “Planning, organizing, communicating, counseling, and decision making (p. 2).”

Projections into the future are necessarily uncertain, and become more uncertain the farther into the future they are made. In our 21st Century NCOs project, we have focused on two eras that are particularly meaningful to the Army: the era from 2000 to 2010, which has been labeled Army XXI (AXXI), and the following era, which has been called the Army After Next (AAN) and, more recently, the Army After 2010. For purposes of this paper, we are equating this second era with the years 2010 to 2025. The use of these guideposts allows us to link our projections with those the Army is making and provides some reasonable limitations to our planning horizons.

Army XXI

General Characteristics

The foremost characteristic of Army XXI will be an emphasis on digitization in and in support of military operations. This digitization will be particularly prominent in battlefield communications, which will enhance situational awareness, and in weapons systems.

Another projected prominent characteristic of Army XXI will be an increasing diversity of missions, including peacekeeping, peacemaking, humanitarian missions, and domestic assistance. As new technology comes on line there will also be, as a third characteristic, a diversity of forces, with some units operating with new equipment and enhanced capability and others operating with less advanced equipment.

A fourth characteristic will be decentralized operations. With increased firepower range and improved communications, doctrine will dictate greater dispersion among friendly units.

Training will also undergo evolution, with increased reliance on such technology-driven techniques as distributed training, distance learning, Internet training and computer-based

instruction, less emphasis on institutional attendance, and more on self development.

Implications for Junior Officer Functions and Processes

In our *NCO21* project, we have used projected characteristics of Army XXI, which expand on those presented above, and other information and judgments about this future era, to draw implications about how NCO job dimensions might change. While these implications were necessarily tentative, they did at least draw on judgments from those who were particularly knowledgeable about present NCO jobs and projected changes to those jobs. We do not have this advantage for lieutenants. What we have for lieutenants is some fairly general information about job functions and processes, in some respects rather dated, and our own speculation about how these functions and processes might change as a result of the characteristics identified and some reasoning by analogy based on projected changes to NCO jobs. These are precautionary statements given so that the speculative nature of the discussion presented below will be properly understood. The objective of this exercise is to both generate a few tentative suggestions about future lieutenant requirements and to provide an illustrative example of what kinds of conclusions might be drawn about lieutenants if the methodology we applied in *NCO21* were properly applied to the issue of officer selection. These suggestions are discussed below.

Perform Technical and Tactical Tasks.

Two projected trends are noteworthy here. First, the technical components of an officer's job are likely to become more complex. Three dimensions which have been associated with task complexity (Campbell 1988; Schroder, Driver, & Streufert 1967; Zaccaro, 1996) are likely to increase: (1) information load, (2) information diversity, and (3) rate of information change. With respect to information load, Hunt and Phillips (1996, p. 3) noted that "Information flow and amount are increasing at an exponential rate; leaders will have to sort out critical information from high volumes of data."

Information diversity is likely to increase as well. Officers will face a variety of potential enemies, assignments, environments, and equipment, with each factor adding to information complexity.

Rate of information change is also likely to accelerate. Because of technological advances and increased variety of missions, the number and nature of tasks will likely change during an officer's career, sometimes very rapidly. The officer will need to be continually learning to deal with these changes.

A second trend involves "increased exposure to differing ethnicities and cultures. Peace keeping and humanitarian missions will bring the Army into contact with different peoples. Moreover, while the AOE [i.e., Army of Excellence, a term used to describe the Army of the 1990s] tended to be insular, the nature of future deployments (joint, coalition, host nation, NATO, UN, other government and non-government participation, civilian contractor supported functions) will expose Army members to new relationships (Ford, Campbell, Campbell, Knapp, & Walker, 1999, p. C-13)."

Supervise Subordinates. Our *21st Century NCOs* project has identified a number of factors which will likely make supervising subordinates more challenging in Army XXI. First, non-traditional deployments, such as those involving assistance and humanitarian purposes, "often involve soldiers performing missions that are not entirely consistent with what they perceive their Army jobs and roles to be (Ford et al., 1999, p. C-14)." This will likely make motivation of subordinates more difficult.

Second, junior officers will need to deal with ethnic and cultural diversity: "The Hispanic youth population will increase to 20-25% of the total youth population by 2010. Urban youth will predominate. (Ford et al. 1999, p. C-21)."

Develop Subordinates. Developing subordinates will also be impacted by changes associated with Army XXI. Steinberg and Leaman (1990) identified a number of training requirements for platoon leaders, noting that the "most prominent leadership area for platoon leaders was Train in the Field to Enter Combat (p. 44)." The trend to shift more skill learning to the unit and the innovations in training technology will place a greater training burden on the lieutenant. There may be a greater need to apply different training strategies and training methods to match different ability groups.

Perform Managerial and Administrative Tasks/Decision Making. Digitization will offer a variety of applications, as well as presenting problems when digital systems fail. It can thus be expected to increase managerial, administrative, and decision making requirements for junior officers.

Future deployments can be expected to present junior officers with additional managerial and administrative requirements as they provide input to decisions on how to staff these deployments. These deployments may rely more on *ad hoc* arrangements than on more traditional personnel structures, further complicating the decision making process involved. Unconventional missions are more likely to involve unanticipated situations, requiring officers to solve problems with unfamiliar elements. Unconventional and other decentralized operations are also likely to provide junior officers with an opportunity to make decisions that historically have been made at a higher organizational level.

Planning and Organizing. Non-traditional missions tend often to involve relatively small units, with the result that lieutenants can be expected to take on greater planning and coordinating responsibilities with respect to these missions.

Communicating/Counseling. Lieutenant communication responsibilities include maintaining two-way information exchange with supervisors and subordinates, communicating performance standards to subordinates, and telling soldiers when they are performing well (Steinberg & Leaman, 1990). The growing reliance on computer communication, including e-mail, will put pressure on lieutenants to communicate effectively in this medium. Also, "the ability to speak rationally and convincingly and keep others informed" will be particularly important to deal with the uncertainty associated with deployments and non-conventional missions (Ford et al., 1999, p. C-13).

Implications for Junior Officer Attributes

As we move from implications for functions and processes to implications for attributes, our exercise becomes even more speculative. We are generating inferences based on inferences. It should be understood that what we are offering here is only a starting point—a set of speculative suggestions rather than a set of

conclusions based on systematic research on officers. Again, the methodology applied in NCO21 provides a basis for generating more solidly based judgments although, since we are dealing with the future, even judgments drawn using that methodology contain a substantial element of uncertainty.

What we would like to do at this point is identify a set of attributes that we think merit particular attention in thinking about future officer selection. We would like to begin by looking at those KSAs which military and psychologist subject matter experts agreed would likely be important for mid-level NCOs functioning in Army XXI. These included the following: judgment and decision making skill, general cognitive aptitude, directing, monitoring, and supervising others, motivating and leading others, oral communication skill, and training others. Each of these was ranked in the top ten by both expert groups. In addition, integrity and discipline, conscientiousness, and job-specific knowledge and skill were ranked in the top ten by one group and the top fifteen by the other (Ford et al., 1999). For our purposes, we will view three KSAs from these lists, directing, monitoring and supervising others, motivating and leading others, and job-specific knowledge and skill, not as attributes but as behavioral dimensions which may be predicted by one or more attributes.

Now we are faced with a daunting question: If we were to accept these KSAs as the important ones for Army XXI mid-level NCOs, to what extent would they be applicable to junior officers as well? That is, what important attributes for officers are omitted from this list, and what attributes that are important for NCOs are not sufficiently important for officers to be considered in a selection context? One attribute that is not included that may well apply to future officers is adaptability. TRADOC Pamphlet 525-5 (Training and Doctrine Command, 1994) anticipated an era in which "complex, adaptive armies (p. 2-5)" would need to adapt to a variety of operations. It thus stated that "Increased flexibility and adaptability will be required at all levels (p. 4-10)."

In comparing the list of mid-level NCO attributes with models of executive leadership (e.g., Zaccaro, et al., 1997) the primary difference seems to be the greater emphasis on cognitive skills in the latter. Also, some noncognitive attributes which are important at lower levels may

be less so at higher levels. Indeed, in our *NCO21* project, conscientiousness was ranked as the most important KSA for promotion to junior NCO but was not listed in the top ten by either panel for promotion to senior NCO.

Based on these considerations and the implications for junior officer leadership drawn from the *NCO21* project, the following attributes were identified, on a preliminary, tentative basis, as deserving particular attention as we think about officer selection for Army XXI. *These are not listed in ranked order.*

- General cognitive ability
- Integrity
- Achievement motivation
- Judgment and decision making
- Social competence
- Adaptability
- Communication ability

Cognitive Ability. Let us first consider cognitive ability. Higher order cognitive abilities and skills have been related to higher organizational levels (e.g., Jacobs & Jaques, 1987, 1991; Streufert & Streufert, 1978; Streufert & Swezey, 1986). It has been postulated (Rumsey, 1998, p. 6) that "the operating environment of the 21st century will require greater exercise of higher order cognitive abilities and skills in two ways: 1) by increasing the responsibility of lieutenants such that they will, in effect, be operating at a higher organizational level and will need to apply the higher order cognitive abilities and skills required for success at these levels, and (2) by directly increasing the task complexity of the lieutenant's job."

As noted above, increases in information load, information diversity, and rate of information change can be expected to increase task complexity at the junior officer level. Why might we expect an increase in responsibility at the lieutenant level? TRADOC Pamphlet 525-5 (Training and Doctrine Command, 1994, p. 2-8) noted that "New communication systems will allow nonhierarchical dissemination of intelligence, targeting, and other data at all levels. The new way of managing forces will alter, if not replace, traditional, hierarchical command structures with internettted designs....Because this internettted structure can diffuse command authority, new leadership and command structures will be required in many militaries."

Similarly, Kilcullen and Goodwin (1998, p. 2) noted: "The lightning pace of 21st Century warfare may require delegation of more decision-making to junior officers, and the lethality of new weapon systems increases the chance that the actions taken by these officers will have a critical impact on the battle's outcome."

A variety of critical cognitive skills are suggested by the projected future officer demands we have discussed. As an earlier paper (Rumsey, 1998, p. 7) noted: "...it seems reasonable to expect that the Army of the future will need officers who can effectively acquire, retain, retrieve and apply information needed to solve problems and make decisions, who can develop strategies for knowing which problems to solve and which decisions to make, for deciding which information is important and which is not, and who can develop and apply strategies for dealing with multiple inputs in a coherent, integrated fashion." We will devote additional attention to problem solving as part of our discussion of *judgment and decision making* below. These skills are linked to Sternberg's concept of analytic intelligence (1994, 1996). Sternberg has identified two other types of cognitive abilities: creative intelligence, or "the need to be flexible and see old problems in new ways (1994, p. 321)," and practical intelligence, which is based more on experience than formal training or education (1994). The variety and novelty of projected missions and assignments in the Army XXI era suggest that creativity and practical intelligence will be important junior officer attributes as well.

Integrity. Rather than listing integrity and conscientiousness as separate attributes here, we will focus on integrity and suggest that one's definition of this term should be sufficiently broad to capture much of the meaning of conscientiousness as well. Professional ethics was identified as the most important of nine Army competencies by a group of predominantly company-grade officers (Savell, Tremble, & Teague, 1993). Integrity has received consistently high ratings by NCO judges in our *NCO21* project (Ford et al., 1999; Rumsey, Busciglio, & Simsarian, 1997). In future deployments, where junior officers may not be closely supervised but where their actions could have profound consequences, the importance of this attribute may be particularly great.

Achievement Motivation. Although effort and initiative was listed separately from need for achievement and general energy level in *NCO21*, all of these are incorporated here under the term *achievement motivation*. In Army XXI, officers will be frequently faced with new assignments and new missions in which their previous training and experience will have only limited value. Individual effort and initiative will be important in helping officers meet these new challenges, both by direct action and through continuous self development.

Judgment and Decision Making. Problem solving, a component of decision making, is incorporated in Sternberg's (1996) definition of analytic intelligence. Thus, it may be puzzling to see these listed here separately from general cognitive ability. However, Zaccaro et al. (1997) presented a model of leadership which also separated problem solving and general cognitive abilities.

The fact that the judges in the *NCO21* project listed both decision making and general cognitive ability among the top-ranked KSAs for mid-level NCOs and rated decision making as the third-ranked KSA for senior NCOs in Army XXI suggests that, while it certainly could be considered a cognitive task, one should probably closely consider whether a separate measure for decision making should be considered for officer selection even if a general cognitive ability test is already available. The increased availability of digital tools and other sophisticated equipment, the proliferation of unconventional missions, the increased operational autonomy and responsibility in the Army XXI environment, which were presumably factors feeding into these judgments of the importance of decision making for NCOs, will all also likely challenge the junior officer's ability to use good judgment, to make effective decisions, and to solve problems in Army XXI.

Social Competence. Social competence is a rather broad concept, and perhaps is best viewed as a constellation of abilities, including the ability to understand social cues, the ability to act effectively in social situations, and the ability to influence others.

Supervision of subordinates, as noted above, is an important component of the junior officer's job. Directing and supervising others, the third highest ranked KSA for mid-level NCOs, can

be viewed as a behavioral indicator of social competence. Motivating and leading others, the fourth-ranked KSA for these NCOs, is another. As decentralized operations increase, the ability of junior officers to work effectively and closely with subordinates in small groups will become more important. Also, officers are likely to be more challenged by the soldiers they are leading and by the diversity of these soldiers, as well as by the diverse cultures and social situations they are likely to encounter in Army XXI deployments. As less hierarchically oriented forms of communication and operation begin to predominate, officers will likely need to engage in more participative forms of leadership.

Adaptability. Officers will be faced with a variety of technical environments, geographic environments, and missions. "Nontraditional missions, urban orientations, new political realities, and ill-defined or rapidly changing threats can cause confusion and ambiguity (Ford, et al. 1999, p. C-13)." Missions will change and tasks will change. Peacekeeping and other unconventional missions are particularly likely to involve complex and unpredictable situations that officers will need to deal with.

Adaptability may not be a single attribute, but rather a combination of attributes. Pulakos, Arad, Plamondon, and Kiechel (1997) described a project being conducted for the Army Research Institute which is examining cognitive abilities and such non-cognitive characteristics as openness, flexibility, and tolerance of ambiguity as predictors of adaptive performance.

Communication Ability. We have addressed issues relating to the future importance of communication ability under the discussion of the officer processes *communicating/counseling* above. Communication is, like some of the other "attributes" described above, perhaps best viewed as a constellation of attributes rather than a single attribute. Certainly some measures of general cognitive ability would incorporate some features of communication ability. However, the judges in our *NCO21* project gave oral communication skill a high ranking even when general cognitive ability was included as a KSA, so we should not assume that a general cognitive measure would sufficiently encompass the features of communication ability that the judges felt were important.

Army After 2010

General Characteristics

Some of the projected characteristics of Army After 2010 that are useful in considering relevant junior officer characteristics are: (1) the emphasis on knowledge, (2) the emphasis on speed, (3) the concept of hybrid forces, and (4) the concept of Battle Forces.

Knowledge. "Knowledge' has an absolute and relative side. Absolutely, it means knowing all that we need to know; relatively, it means having much better information than the enemy ('information dominance'). A wide range of capabilities is implied, including these: giving commanders a view of the location and condition of all of our human and material assets ('total asset visibility'); giving forces a common, complete, accurate, and current picture of the battle situation at the level they need to know it; knowing enemy locations, actions, forces, and intentions; synchronizing the many parts of our joint and coalition forces; and denying an enemy comparable knowledge. Knowledge will let us maintain advantages of position to initiate surprise, standoff engagements instead of predictable force-on-force ones (Ford et al., 1999, p. C-26)."

Speed. "The complement to Knowledge, 'Speed,' is required at the strategic, operational, and tactical levels. The AAN vision calls for Battle Forces in a high state of readiness to deploy themselves within days to anywhere in the world.....As a matter of tempo, speed involves maintaining a continuous pace of operations until each objective is achieved. Knowledge encourages speed by permitting forces, with awareness of friendly and hostile locations, to avoid overmatch, and make every move count (Ford et al., 1999, p. C-26)."

Hybrid Forces. The force of 2025 will be a hybrid force, composed of a number of components, including Army XXI forces and other more traditional forces, as well as a component particularly designed for the challenges of the 2010-2025 timeframe, the Battle Forces. It is on the Battle Forces that we focus on to identify requirements that may go beyond those required of AXXI officers.

Battle Forces. It should be understood that the concept of Battle Forces, while it is based on recent sources, is subject to revision. Part of

this concept involves organization in small teams, mixing of roles across ranks, and cross-training of team members, who are multifunctional in terms of being able to conduct diverse activities and participate in diverse missions. The concept of Battle Forces is in many ways comparable to the concept of Special Forces.

Implications for Junior Officer Functions and Processes

There are just a few implications for the officer functions and processes that we are considering that we would like to highlight here.

Perform Technical and Tactical Tasks. It is expected that Battle Force soldiers and leaders will need to be multi-skilled. Their jobs will be more complex, less standardized and less proceduralized with more individual innovation required. Jobs will require constant, career-long learning to keep up with changing systems. The spread of computerization will likely increase, requiring sophistication in understanding computers and maximizing their use by officers. The quantity of available information will likely continue to increase, so "[p]rocessing large amounts of information with speed, accuracy, discipline, and discrimination....(Ford, et al. 1999, p. C-40)" will probably be required.

Supervise Subordinates. "Directing and supervising in the Battle Force environment will be a more shared, collaborative effort rather than a sole responsibility of those 'in charge' (Ford, et al. 1999, p. C-41)." Leader roles are expected to be more fluid.

Develop Subordinates. Training in the Battle Forces will involve more learning by apprenticeship, so officers who are comfortable with this type of arrangement will be more likely to effectively perform their training roles.

Decision Making. Battle Force leaders will need to be effective decision makers in a variety of complex, uncertain, and changeable environments, using a variety of sophisticated equipment, under conditions of high stress.

Communicating. "Conveying thoughts, ideas, conclusions, and recommendations will be a critical part of BF [Battle Force] operations. While relaying of much information will be automated, the human ability to communicate effectively will be, if anything, more vital to BF

[Battle Force] operations. The ability of individuals to organize, present, conduct, and respond to verbal and non-verbal communications will be crucial (Ford, et al., 1999, p. C-41)."

Implications for Junior Officer Attributes

When we asked military and psychologist subject matter experts to identify knowledges, skills and abilities that Battle Force NCOs would need in the Army After 2010, the two panels had general agreement that the following were important: judgment and decision making, general cognitive ability, knowledge of battlefield function integration, emotional stability, general self-management skill, and self-directed learning skill. There was somewhat less consensus for adaptability, knowledge of system inter-relations and physical fitness (Ford et al., 1999).

For purposes of selection, our interest is more on abilities than on knowledges and skills, although the possibility that there are specific measurable attributes associated with general self-management skill and self-directed learning skill may merit further investigation. Many of the environmental factors related to general cognitive ability, adaptability, and problem solving in the Army XXI discussion above might be expected to be equally relevant in the Army After 2010 era. Task complexity will likely remain high. Junior officers will likely encounter a variety of situations that require flexible, adaptive, creative thinking. They will need to make decisions in a variety of complex, unstructured environments.

Emotional stability may become increasingly important, based on projections about the stressful nature of Battle Force operations. While the following observations are not focused specifically on officers, they provide a sense of the type of environment officers may need to operate in: "Battle Force soldiers will be used in combat situations that we currently cannot forecast. They may witness employment of WMD [weapons of mass destruction] including large-scale civilian casualties. They may be deployed while the U.S. homeland (and their families) are under missile or WMD threat or attack. They may be placed in situations that their training did not cover or be faced with unanticipated equipment failures. Invariably they will be expected to operate in very small groups and sometimes even alone. Battle Force elements can expect casualties that can

destroy team nucleus. All these factors will increase mental and emotional stress under conditions that we cannot yet anticipate (Ford et al., C-41)."

The emphasis on speed during military operations, particularly if these operations become extended, could place a premium on fitness. The following conclusions, while again not focused on officers, may nonetheless have relevance: "Fitness will likely have three components: physical, mental, and emotional. Physical fitness will likely be in terms of stamina and endurance rather than AOE characteristics of strength and leg speed. The ability to cycle, at will, between rest and activity may be increasingly important. Age, up to a point, may be incidental and the average age of the Battle Force soldier will likely be mid-30s. Mental fitness will include agility, comprehension, acuteness, and memory. Emotional fitness will probably require stress resistance (Ford et al., 1999, p. C-41)."

Integrity, achievement motivation, social competence, and communication ability were the other attributes discussed in the Army XXI section. These or related KSAs were given attention by our expert panels, but were not consistently ranked highly for NCOs by these panels. In general, the points made about these with respect to Army XXI above would seem to hold for Battle Force officers as well. Officers may well be in situations where a lapse of integrity could have significant consequences. Achievement motivation will likely be needed to help officers deal effectively with new assignments and new missions, and to help them pursue continual self development. The need for clear, effective communication, as noted above, will likely be critical to the success of Battle Force operations. The social ability to exercise leadership in a more participative manner will likely be as important, if not more so. The reduced rankings for these attributes or related KSAs for NCOs probably reflects a judgment not so much that these will become less important in a Battle Force context, but rather reflects the judged significantly greater importance of such attributes as judgment and decision making in that context. We must at least consider the possibility that there might be a comparable shift in relative importance of these attributes for officers, but we have no empirical data, even in judgment form, with which to test this hypothesis.

Conclusions

The Army will need strong leadership to help it meet the challenges of the 21st century. The question in selection terms is: What attributes make a strong junior leader? The answer to that question is not independent of the environment the leader will be operating in or the functions the leader will perform. Thus, it is necessary to take a close look at leader functions in the context of future environments in attempting to identify these attributes. The exercise engaged in here should be considered more as a demonstration of an approach rather than an attempt to provide a definitive list of attributes. Since we have relied so much on information obtained from a focus on NCOs, this is best viewed as an indirect application of that approach. A more direct application would generate a more defensible list.

From our indirect approach, we do have some interesting hypotheses. The possible importance of judgment and decision making, either as a component of general cognitive ability or as a separate attribute, suggests a path worth pursuing, particularly as we look beyond the year 2010. General cognitive ability is likely to continue to be important, including analytic, creative, and practical components of this ability. Achievement motivation, adaptability, social competence, communication ability, and stress tolerance also look like potentially fruitful areas.

Clearly, identification of promising attributes is but a first step toward implementing any change to the current officer selection system. Other questions to be asked include: (1) Is the attribute adequately measured in the current selection system? (2) Can the attribute be measured accurately? (3) Does the attribute indeed predict the performance it is hypothesized to predict, and (4) Does the benefit of having this measure in the officer selection system justify the cost of developing and using this measure? We recognize that any changes to the current selection system involve some cost, and we clearly are not in a position now to judge whether expanding the current system would be a cost-effective step. However, we will suggest that it is a prudent step to periodically examine whether the officer selection system being used is actually selecting those who will serve the Army best, both now and in the future.

References

- Campbell, D. T. (1988). Task complexity: A review and analysis. *Academy of Management Review*, 13, 40-52.
- Ford, L. A., Campbell, R. C., Campbell, J. P., Knapp, D. J., & Walker, C. B. (1999). *21st century soldiers and noncommissioned officers: critical predictors of performance*. Manuscript in preparation.
- Hunt, J. G., & Phillips, R. L. (1996). *1996 Army symposium: Leadership challenges of the 21st century Army. Executive Summary* (Research Note No. 96-63). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Jacobs, T. O., & Jaques (1987). Leadership in complex systems. In J. Zeidner (Ed.), *Human productivity enhancement. Volume 2: Organizations, personnel and decision making*. New York: Praeger.
- Jacobs, T. O., & Jaques (1990). Military executive leadership. In K. E. Clark & M. B. Clark (Eds.), *Measures of leadership*. Greensboro, N.C.: Center for Creative Leadership.
- Jacobs, T. O., & Jaques, E. (1991). Executive leadership. In R. Gal & A. D. Manglesdorff (Eds.), *Handbook of military psychology*, Chichester, England: Wiley.
- Kilcullen, R. N., & Goodwin, J. (1998). *Requisite attributes for 21st century combat leaders*. Unpublished manuscript.
- Pulakos, E. D., Arad, S., Plamondon, D., & Kiechel, K. L. (1997). *Examining the feasibility of developing measures of stress adaptability* (Tech. Rep. No. 1068). Alexandria, VA: U. S. Army Research Institute for the Behavioral and Social Sciences.
- Rumsey, M. G. (1998). *21st century lieutenants*. Paper presented at Cadet Command Study Group, Norfolk, VA.
- Rumsey, M. G., Busciglio, H., & Simsarian, S. (1997). *21st century NCOs*. Paper presented at the 9th Defense Analysis Seminar, Seoul, Korea.

Savell, J. M., Tremble, T. T., Jr., & Teague, R. C. (1993). *Some lessons learned about leadership in Operation Desert Shield/Storm* (Study Rep. No. 93-05). Alexandria, VA: U. S. Army Research Institute for the Behavioral and Social Sciences.

Schneider, B., & Konz, A. M. (1989). Strategic job analysis. *Human Resource Management, 28*, 51-63.

Schroder, H. H., Driver, M. J., & Streufert, S. (1967). *Human information processing*. New York: Holt, Rinehart & Winston.

Steinberg, A. G., & Leaman, J. A. (1990). *Dimensions of Army commissioned and noncommissioned officer leadership* (Tech. Rep. No. 879). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Sternberg, R. J. (1996). *Successful intelligence*. New York: Simon & Schuster.

Sternberg, R. J. (1994). The PRSVL model of person-context interaction in the study of human potential. In M. G. Rumsey, C. B. Walker, & J. H. Harris (Eds.), *Personnel selection and classification* (pp. 317-332). Hillsdale, NJ: Erlbaum.

Streufert, S., & Struefert, S. C. (1978). *Behavior in the complex environment*. New York: Wiley.

Streufert, S., & Swezey, R. W. (1986). *Complexity, managers, and organizations*. Orlando, FL: Academic Press.

Training and Doctrine Command (1994). *Force XXI operations*. (Pamphlet No. 525-5). Fort Monroe, VA: U.S. Army Training and Doctrine Command.

Zaccaro, S. J. (1996). *Models and theories of executive leadership: A conceptual/empirical review and integration*. Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Zaccaro, S. J., Mumford, M. D., Marks, M. A., Connelly, M. S., Threlfall, K. V., Gilbert, J. A., & Fleishman, E. A. (1997). *Cognitive and temperament determinants of Army leadership*. Manuscript in preparation.