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Metacognitive, Social and Interpersonal Skills and Aptitudes in Officer Performance with Distributed Teams

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"Les choses simples sont difficiles à expliquer"
Henri Matisse.

Abstract

Military services, Police, Fire Brigade, Medical Emergency Teams and various other task cohesive groups require supervisory management to ensure that goals are met in a manner which is flexible, reduces risk, is resource economical, and promotes team development. Many of the military and emergency teams require leadership via mediated communication because different elements of the team perform functions in different locations. There is adequate evidence from research on the use of different types of media, with different rules of interaction, with different groups and tasks that performance varies significantly in process and outcome terms between face-to-face and mediated communication variants (Anderson, Newlands, Mullin and Fleming, 1996; Archer, 1990; Christensen and Fjermestad, 1997; El-Shinnawy, and Vinze, 1997; Hollingshead, 1996a, 1996b; Valacich and Schwenk, 1995; Lim and Benbasat , 1997; Reid, Ball, Morley and Evans, 1997), with performance generally poorer in mediated (non face-to-face) situations.

Analysis of leadership roles in general clearly indicate the significance of insightful management of relationships among team members and their relation to the outside world (Katzenbach and Smith, 1994). The priorities identified by this very early work is identified in short pocket guides (Fleming, 1996; Hardingham, 1995; Birch, 1999; Heller, 1999) and in more academic reviews (Larson and Lafasto, 1989; Hartley, 1997; Belbin, 1999).

The significant issues in leadership are:

1) The management of goal orientation.

2) Building confidence.

3) Managing the resource availability in the team.

4) Articulating performance with other teams.

5) Create or identify opportunities for human resource use and development.

6) Match assets/resources to demands.

This emphasis on relationships and intelligent asset management (human and material) supports the general tenets of this paper which emphasises the need for metacognitive, social and interpersonal skills in effective leadership. Early research such as that of Stogdill (1974) indicated that leaders tended to be more intelligent, sociable, and achievement oriented (internally motivated by their own standards).

This paper recognises the tendency for managers and leaders to be merged into one individual as the downward pressure on military and civil institutions creates flatter management groupings from fewer numbers of individuals. In addition it is acknowledged that both the pace of modern warfare and the need for resistant or robust command and control, results in distributed leadership and management on the battlefield, in the air and at sea.

Planning and Execution Phases

One can distinguish two phases when leadership is critical in warfare. First, the planning phase and second, the execution phase. In some cases both the planning phases and the implementation phases take place in distributed groups. For example, the crews operating in Allied Force were drawn from a wide range of bases, aircraft carriers and in some cases they flew trans-meridian flights to accomplish their missions.

In other instances, crews plan together and carry out operations in distributed teams who may themselves not be co-located (in different aircraft). Thus, in air warfare teams tasked with Electronic Warfare (EW), Suppression of Enemy Air Defence (SEAD), air-to-air (A2A), air-to-ground (A2G), Airborne Command and Control (ACC), Electronic Intelligence (ELINT), and tankers may act as semi-autonomous teams who must be coordinated at higher levels (Penney, Doke, and

Warwick, 1999) to ensure effective use of assets and to prevent operational errors, such as friendly fire and co-lateral damage.

Specialist Functions and Leadership

Air warfare teams who perform different functions have specialist knowledge. It has been argued that knowledge drives situated cognition in specialist tasks (Clancey, 1997) and it guides expert performance (Klein, 1997). It has been argued that this specialist capability cannot be re-created by multi-role or swing-role forces as a result of the subtle aspects of knowledge and its relationship to action. Thus, in the Gulf War Wild Weasel assets and specialist ground attack aircraft, like the A10 were invaluable in suppressing enemy air-defences and neutralising armoured ground forces (Isby, 1997; Spick, 1995; Thornborough, 1995).

Whether there are diverse specialised assets or multi-role aircraft in operation it is clear that communication is a requirement for effective air warfare operation (Cook, Elder and Ward, 1997a, 1997b, 1999). It is clear that there are also significant risks of mis-managing communication and interaction in such highly dynamic, time-critical environments (Cook, Elder and Ward, 1998a, 1998b; Cook, Angus, Brearley, and Drummond,1998; Cook, Angus, Brearley, and Stewart, 1998).

The significance of this diverse range of assets is the need for senior officers and leaders of missions to understand the capability of the different assets available to them. In the United Kingdom the Tactical Leadership Exercises (TLTs) and NATO led Tactical Leadership Program (TLP) are intended to help officers develop this type of knowledge. It is clear that multi-national groups are frequently the only feasible way to assemble the relevant air-assets, with specialised assets generally available only as a result of U.S. participation (Penney, Doke, and Warwick, 1999). For example, electronic warfare with hard and soft kill capability is virtually a unique resource of the U.S.A. with its EA-6 Prowler aircraft and special wild-weasel in a pod F-16s, and many air forces do not have adequate tankers for air-to-air refuelling (Thornborough, 1995; Rendall, 1997).

Without adequate task knowledge officers cannot make the best use of the resources available to them and part of the learning process for acquiring that knowledge may be dependent on metacognitive skills or reviewing and self-monitoring.

The significance of asset management is well illustrated in the rescue of a single airman Capt. Scott O'Grady, USAF, because it involved almost 18 aircraft, 120 personnel, without accounting for the AWACS and reconnaissance aircraft (Rendall, 1997). It is to be expected that the daring rescue of the F-117 pilot during Operation Allied Force was no less complex and expedited in a shorter time-frame than the six days that O'Grady spent under cover behind enemy lines in the Bosnian Conflict.

Leadership Training

"The principal goals of a typical training program are to produce optimal transfer of that training to anticipated post-training environment of some kind. With rare exceptions, then, the goals of training are long-term goals. We would like knowledge and skills acquired during training to be durable, not only in the sense of surviving from the end of training to a later time when knowledge or skill is demanded in a real-world setting, but also in the sense of surviving periods of disuse in the post-training environment itself." Bjork (1994).

Extracting this task knowledge requires the leader to observe and evaluate their use of assets in exercises, and to monitor the use of those assets carefully in operational deployments. To some extent they will be helped by their peers and by their assessors but the best lessons are inevitably those they teach themselves as the future cued recall is strengthened by their own awareness. This capability to externalise information is based on metacognitive skills. The monitoring of the process and the soliciting of relevant information in a facilitative manner is something which requires good communication skills and effective interpersonal skills. Thus, communication and interpersonal skills will undoubtedly affect the final quality of leadership but they may also affect the duration of training required to meet a criterion as training development depends on the individual facilitating information gathering.

The leader of specific teams needs to ensure that they can correctly envisage the progress of the team in relation to the assigned task or goals, by foreseeing obstacles, facilitating communication, and co-ordinating inputs from different team members. An effective leader does not, however, operate in a vacuum and they need to be capable of seeing the world as others see it. No matter what senior military personnel imagine the goal or task objectives set for teams are socially constructed and the team's interpretation of the goals is strongly influenced by the communication and interpersonal style of the leadership. It can be argued that there is no perfect leadership style, in the singular sense, but a requirement for a fluid, but clearly identifiable shift between appropriate roles.

Fluid Leadership Intelligence

In perfect teams the leader's role may be vestigial because the team process should be automatic, with no requirement for their facilitative action. Teams who feel they are populated by competent individuals may feel

undermined by a leader who insists on autocratic and centralised decision making.

By contrast, many newly formed or multi-national teams, common in the modern military environment, need active leadership because team actions need to be co-ordinated in the modern highly dynamic and rapidly changing battlefield.

It is clear that part of the leadership ability is to sense, assess and iteratively evaluate the feelings of others in the team to ensure that the style adopted matches the perceived environmental demands and the level of team maturity.

In some cases there is a need to challenge the views of others because they have failed to rationally appreciate the political and tactical significance of their leadership choices. Leaders need to be able to accept such advice and to carefully consider the different perspectives afforded to them by other officers at both senior and junior levels. Cockpit Resource Management or Crew Resource Management, which is represents a series of training initiatives in civil airlines to improve social interactions in order to reduce accidents or decrease the impact of accidents addresses related issues. Cockpit Resource Management (CRM) identifies cockpit authority gradients and communication barriers as significant issues in preventing the effective critiquing of plans. In CRM the significance of authority gradients and the possible errors accruing from dismissive attitudes towards other's opinions are well documented. Thus, the sensitive management of Pristina Airport by the UK forces represents a good example of considered action because confrontational action with Russian Troops could have precipitated intra-peacekeeping fatalities. The failure to disembark troops from the Sir Galahad and Sir Tristram, after a challenge from a junior officer who drew attention to the precarious nature of the ships in open water (Rendall, 1997; Suster, 1997), is an example of failed leadership with catastrophic consequences.

The tendency to stick to a decision already taken reflects a failure of leadership and the ability to self-review and monitor. In many ways this resembles the team equivalent of groupthink and may be a result of similar factors, such as cognitive overload encouraging the tendency to adhere irrationally to plans that help reduce cognitive demands, as a result of the cognitive resource gradient in shifting from skill to procedural or rule-based information processing (Cook and Elder, 1998). It may be argued that one of the critical roles of leadership is to identify changes in operational context that require a shift in the team equivalent of Rassmussen's (1983, 1986) skill, rule and knowledge based processing. This is effectively cognitive and task based resource management, and failure to modify plans represents a form of cognitive overload due to a micro-management style.

Many reviewers agree that groupthink is a potentially damaging process for decision making in that the choices taken may be ineffectively reviewed and evaluations may be false or misleading (Fleming, 1996; Hardingham, 1995; Hartley, 1997; Hayes, 1997; Larson and La Fasto, 1989). If the circumstances in which the decision-making choices are executed are challenging, in that the task requirements potentially exceed the resource availability or there spatial distribution, or the task proves impossible for another reason, then serious failures can occur. There are cases where the management of the available resource has enabled the leadership to overcome significant challenges with positive performance outcomes and others where adequate resources have been mis-managed with poor performance outcomes. In a general sense, the performance failures can largely be attributed to earlier process failures resulting from poor leadership, such as groupthink because of inadequate facilitation of communication or the superficial consideration of the task requirements.

There are many events that require effective leadership intervention, such as unusual or unexpected events, failures by individual team members, equipment failures (particularly communication systems), resource mismatches between demand and available resources due to poor intelligence. These events require an ability to quickly prioritise tasks, resources and goals in relation to each other. The ability to manage such event sequences in distributed teams requires cognitive, cogno-social and interpersonal skills. Team leaders clearly require effective communication and interpersonal skills to ensure that they can monitor, control and re-distribute functional roles via mediated communication. The use of mediated communication in particular involves an ability to adopt the perspective of other team members in response to communication because of the need to generate belief and commitment to changing plans. While these skills can be partly acquired or developed as a skill it can be argued that the ultimate level attained is limited by aptitudes of the potential candidates. The perception of the orders issued and the validity / reliability of the source are frequently inter-related.

The ability to manage a team requires a development process whereby the leader creates an image of calm, confident, considered control which demonstrates insight. Again communication skills are required to develop the isolated individuals into a cohesive team. In addition, the leader is required to self-monitor and review the team's skills and achievements with respect to their input. Interpersonal and social skills are required to appreciate how others perceive and interpret their actions and communications. This ability to understand others and to reflect on oneself is particularly vital because the leader of any team must impose order when uncertainty and ambiguity exist in the operational environment, with respect to actions required or the

information available. It has been argued that some individuals are poor in their use of social knowledge and in their ability to apply metacognitive analysis to their own social or cognitive processes. It is proposed that there are core skills, developed from aptitudes, which are related to perspective taking. It is proposed that these perspective taking skills are in turn important in the appreciation of one's own team performance and in aiding in the development of effective responses to opposition forces, as a result of insight into their strategies. While such skills can be developed it is possible that the constellation of aptitudes, underpinning these skills, may be selected for at recruitment by effective techniques in an assessment centre approach using special exercises.

The History of Clearly Identifiable Leadership Traits

When this abstract was first written by one of the authors it was largely written in ignorance of a literature that is almost forty years old. By good fortune a copy of Wren's (1999) introduction to social influence was purchased and the chapter on leadership was a revelation. The analysis put forward by Wren's book seemed to be in harmony to that put forward in the abstract submitted in the same year and it was in general accord with that in other related textbooks (McIlveen and Gross, 1999). However, there were qualifications to the views expressed in the book, as Wren himself pointed out, because the material presented was drawn from different domains not particularly relevant to that of military leadership. There are those who would and have argued that principles identified in social discourse in other realms can, with some justification, be applied to specific domains. Larson and LaFasto (1989), have produced a book on teamwork, which is based on surveys of teams in a wide range of areas, and claims to have identified common features which appear across domains. Thus, it is clear that leadership can be separated into domain specific aspects of leadership and the more generic characteristics of the leadership role. This type of analysis acknowledges the need for task specialists and socio-emotional specialists to manage the cognitive and social aspects of teamwork identified in earlier research (Bales and Slater, 1955).

Wren's Analysis of Leadership

As Wren (1999) notes leadership is a term which has become embedded in societal language and examples of leadership can be found in sport, business, research and many other domains of human activity including the management of military operations. While agreeing it is difficult to define it is clear that an absence of leadership or the presence of effective leadership can generate significant differences in performance outcomes.

There is no doubt that many early studies focused on the individual as a source of leadership ability and they found that need for achievement, motivation, and intelligence were commonly factors that differentiated great leaders. However, subsequent analyses have failed to validate these early observations on greatness and many of the correlations were found to be weak. As Wren (1999) notes people frequently commit the fundamental attribution error in associating the personality attributes to explain an individuals success.

The attempts to identify observable characteristics of leaders largely continued the search for qualities or types of leadership. Wren (1999) notes that sociological analyses suggest that authority comes from rational, traditional and charismatic features of the person or their position. In the simplest terms, those following leaders see their actions as legitimate and socially accepted. Charismatic influence over others largely applies to cases where individuals idolise the leader as some superior intellect. In military terms the traditional and rational aspects of leadership make sense but the charismatic does not. There are real dangers in military teams blindly following the directives of their leader because the leader may fail to make the correct judgement. When the Sir Galahad and the Sir Tristram were caught in open water with troops on board it was a clear error of judgement on the part of the commanding officer and it is generally acknowledged that the British Forces were very lucky to achieve the overall results they did despite such errors of judgement. In such a context a boat is extremely vulnerable to attack. The possession of Exocet missiles and the damage inflicted to HMS Sheffield should have made the officers more wary even though many of the attacks were pursued with inferior iron bombs. Indeed, the results of the Argentinean attack on the British ships would have been much worse had many more of the iron bombs not failed to detonate.

Perception of Leadership and Attributions of Authority

It is possible that leadership presents the same philosophical conundrum as colour does in visual perception. Colour does not really exist as an attribute of objects because the surface qualities are determined by absorption and reflection of light (Thompson, 1995). By the same token leadership is something that others perceive in an individual and it does not seem to simply be a quality of the person. With regard to the colour of objects the spectral quality of light incident on any surface may actually change the pattern of light emitted but we perceive the colour as relatively constant. By the same token an individual can command authority and respect in certain circumstances but their appearance may change in different contexts. Again it is only the constant perception of senior figures as authoritative which maintains their control.

Social Skills

It has been proposed that social skills are significant in managing distributed groups because sensitivity to the

use of language may be the only cue as to the state of teams separated in space. Bales and Slater (1955) identified two categories of leaders from small discussion groups which they termed task specialists and social-emotional specialists. As Wren (1999) notes the basic categorisation identified by Bales' results was supported by later studies by Fleishman (1973) in which it was found that two categories of leadership were apparent:

- initiating - goal and task-orientated.

- consideration - relationship-oriented.

Analysis of results does not clearly establish the dichotomous partitioning of the skills in both leadership styles. Some studies suggest that the categories are mutually exclusive and any individual cannot exhibit both styles. Other studies suggest that while the axes are not statistically orthogonal they are independent enough to allow individuals to score high on both, low on both or high on one and low on the other, or low on both (Blake and Mouton, 1968).

Bass (1990) reviewed the literature and concluded that different styles are more or less likely to be the more effective in different contexts. Autocratic styles are more effective in authoritarian environments where followers are expected and look for a leading figure. Task-orientated leaders are found to be more effective in environments that are either favourable or unfavourable to the group goals. In warfare the context may rapidly change and an effective leaders have to change their style of leadership and communicate that change in intent and authority to their team. If leadership remains rigid and inflexible there are many dangers and pitfalls awaiting the unwary.

Metacognitive Social Skills

"O wad some Power the giftie gie us,
To see oursels as others see us !
It wad frae monie a blunder free us,
An' foolish notion"

Robert Burns (1786) in *To a Louse*

"O would some power the gift to give us,
To see ourselves as others see us !
It would save us from our own mistakes,
And foolish ideas."
English Translation from Scots version of
Robert Burns (1786) in *To a Louse.*

Robert Burns clearly identifies the importance of seeing ourselves as other's see us and it is clear that effective leaders cannot simply direct without knowledge of how others perceive them and their actions. A good leader must be aware of the image and the message communicated to their team or unit. Failure to be sensitive to the affective, cognitive and perceived quality of the team commanded can easily result in poor or

inappropriate resource management, hesitation, decision-making paralysis and many other behaviours that are potentially catastrophic in the fast paced modern war.

The importance of monitoring and reviewing one's own behaviour, cognitions and their effects on others seems fundamental to the leadership role. Reviewing and monitoring are equally important in sustaining and maintaining effective team performance and behaviour (Belbin, 1999; Fleming, 1996; Hayes, 1997). Any leader with this ability is likely to command significant respect and exert significant control over their followers. However, the power of this improved self-awareness extends beyond the realms of simple interpersonal skill improvements.

First, it has been shown that the behaviour of individuals contributes significantly to the perception of their leadership qualities by others. Any self-awareness of their own impact on others and the ability to refine those skills, through self-review and monitoring, would significantly increase their confidence and this in turn could improve their presentation of their leadership abilities. This ability is well described in the quote from Robert Burns above.

This improvement in performance would not be sustained without sensitivity to the reactions of others because situations may change and require a flexible response to each new set of circumstances. A rigid inflexible style may be highly predictable but it is unlikely to inspire confidence from others. This is something which is analysed at a later point.

Communication Skills

It is clear that language presents many problems in terms of ambiguity, its verbosity, and the multi-level analysis that is required to extract meaning. It is all too easy to believe that we rarely make mistakes because the mechanisms of repair are built into the dialogue process itself. However, careful analysis of accident reports and of communication suggests that it may contribute to a significant degree in accident development or occurrence (Cushing, 1994).

Communication has been identified as highly significant in many reviews of human factors in military operations (Huey and Wickens, 1993) and it is clear that it forms a core element in effective Crew and Cockpit Resource Management - CCRM (Kanki and Helmriech, 1993; McCallister 1997).

Given the importance of linguistic skill in communicating the *clear elevating goal,* identified by Larson and LaFasto (1989), as a significant factor in effective team performance it is not surprising to find that communication skills are considered vital. It is possible that communication skills are more important in

teams that work in distributed planning and execution environments where mediated communication takes place as some analyses suggest (Cook, Angus and Campbell, 1999). Indeed, in reviewing mediated communication Mantovani (1996) suggests that:

"The model of communication as information transfer does not take into account the cooperative component, which stimulates reciprocal responsibility for successful interaction and a series of subtle adaptations among interlocutors." Mantovani (1996).

Mantovani (1996) goes on to suggest that:

"The new, alternative concept, which is emerging with increasing clarity, is that communication is a common construction of meanings (Kraut and Streeter, 1995)".

Mantovani (1996) continues stressing that the belief that communication is a body of information, containing objective facts, is effectively a falsehood, because receipt does not guarantee comprehension. Accepting this basic fact is the key to accepting the significance of effective communication which can generate highly significant task failures in cooperative tasks that are common in military environments.

We are indebted to Raphael Pascual (1998) for the following anecdotal example observed in army personnel. In an experimental task, managing a difficult and uncertain situation an officer in a simulated communication cell failed to pass on information to a senior officer and when the situation started to degrade rapidly the officer passed on information. Thus, the next highest-ranking officer in the chain of command was presented with a very difficult situation for which they had poor situational awareness. This resulted in a poor outcome and this can be partly attributed to poor communication, low levels of sensitivity on the part of the officers concerned and poor interpersonal skills. The junior ranking officer was concerned about their image in the eyes of the senior officer and wanted to appear competent by managing the situation. The senior officer had not established a facilitative and confident relationship with their junior officer which reinforced the concerns of the junior officer. The senior officer failed to monitor and review the relationship so that as the problem situation worsened they had not pro-actively solicited communication from the junior officer.

These anecdotal reports can be supported by ample evidence in the cockpit voice recorder literature (Macpherson, 1998) and by analyses of specific incidents such as the Tenerife Crash (Cushing, 1994; Beaty, 1995) which indicate the potentially high costs of communication failures, which are often associated with poor quality leadership.

It must be remembered that self-review and monitoring are a significant part of maintaining communication skills which may be subject to the fluctuating and uncertain effects of fatigue (Graeber, 1988) or stress.

Affective Management

An important element of the interpersonal skills and communication repertoire is the management of failure and learning from mistakes (Hayes, 1997). Leaders are often required to trap failures or identify errors, before they result in significant negative outcomes, but they must take care to avoid undermining the confidence of the team or lose overall situational awareness by micro-managing the task in progress. In addition, when failures occur leaders must identify the problems and guide the team to prevent recurrence. In managing the failure or the prevention of failures leaders clearly need to be sensitive to the emotional response of their team members. At the same time leaders need to instil confidence and not to appear vacillating, or the team morale will disintegrate. This paradox of strong, silent leadership with minor exceptions underscores the fluid nature of leadership because there are clearly times to be silent and times to be outspoken. Leadership which fails to identify those periods in which their team needs verbal support or who interrupt unnecessarily.

Another aspect of the affective management identified as a core element of leadership is never ignoring shortfalls in team performance (Hayes, 1997) Again this requires sensitive handling to ensure that those contributing to the failures or shortfalls are informed of the problem. An important part of the process of effective leadership is the recognition of a portion of the blame in relation to the management process openly accepted by the leader. This open acknowledgement of under-average performance is a part of the RAF culture which has been established to improve operational performance and to increase flight safety in peacetime training. Open communication of this type can only occur when the response of the leadership is not guaranteed to be retributive or vengeful. Many analyses of effective team performance identify open communication as a relevant factor in good team performance (Fleming, 1996; Hayes, 1997; Hardingham, 1996; Hartley, 1997; Wren, 1999).

A significant factor contributing to communication performance of groups is the leadership style. It has been argued that leadership style is part of a trait-based approach to selection which fails to identify significant exceptions to the general selection criteria (Jennings and Watson, 1994). It is clear that the current proposal for emphasising social, communication and metacognitive skills could be seen as subject to the same criticisms. However, the approach put forward here is one which recognises flexibility of leadership style as an important additional caveat. This flexibility would allow the adoption of an appropriate style to suit the operational

context. This flexibility would be an important part of the metacognitive skills which the effective leaders possess.

Leadership Style and Team Performance

The importance of flexibility is demonstrated by a relatively old series of surveys (Fleishman 1973) in which two categories of leadership were identified:

- Task/Goal-Orientated.

- Relationship Orientated.

Bass (1990) followed this earlier work and found that different leadership styles occurred in different environmental contexts. Autocratic leadership styles were effective in authoritarian environments but task-orientated leaders were better in uncertain environments. A critical question which is still alive in the management literature is the exclusivity of the management styles. Other analyses have identified important interactions between the leader and the sub-ordinates. Fielder (1971, 1981) identified three factors contributing to effective leadership:

- Leaders Relationship to Followers.

- Task Type.

- Leader's Power.

A key element of the military environment is the way in which the relationship between leaders and sub-ordinates and the leader's power would remain constant, while the task type or mission varies depending on the context.

As Wren (1999) notes the degree of uncertainty in the task and the definition can vary. This has commonly been acknowledged as a problem in peace-keeping, United Nations and humanitarian missions where the military are deployed. It is clear that the mixture of different cultures in one team, as is often the case in peace-keeping operations, puts significant social and cognitive demands on the leader of such teams. The military and social cultures of the respective forces may differ greatly, as may the behavioural mores and customs, which may in turn influence the credibility of leadership. The degree of liking and respect are significant in team management by a leader, this is a major problem for distributed groups, in that it is hard for a leader to establish an effective image for the team. The final element is the power of the leader and as Wren (1999) acknowledges the military leaders have considerable power. This cannot be immediately reconciled with the likely threat from a formidable enemy defence but it may maintain team performance in normal operating conditions.

As Wren (1999) notes the different leadership styles are suited to different situations and given the possible variety of operational contexts it is important to have a flexible leadership style in which changes between scripts are adequately signalled to sub-ordinates. Some may argue that it is important to maintain distance between the leader and the team. Maintaining distance may only serve to emphasise authority gradient and increase the likelihood of poor communication in distributed teams.

The selection of the modern military leader (An example)

Selection has always been a difficult task. Especially when leadership-traits are the subject to be investigated. It has become clear, that the tasks and therefore the demands made on the modern young officer have not become simpler. In fact, the tasks have become more complex, the function of the young officer has become more complex, the risk of failure has become greater and the number of potential officer-candidates has decreased (McKinsey, 1999). This hiatus in expectation has coincided with a period in which the domain roles are more uncertain because of the changing usage of the armed forces in humanitarian and peace-keeping roles, with there uncertain rules-of-engagement and vague or uncertain interpretations of command intent and authority. All of these factors contribute to the fact that the selection-process of young officers has become more demanding as well. It can be argued that many of the traditional methods for officer selection need to be revised in light of these changes in requirement.

First, it is of great importance that it is clear what tasks the young officer will have to perform once on the job but this is now uncertain and subject to change. A proper and thorough analysis of the function is vital to every selection-process and this case is no exception to the rule. As been suggested in this paper so far aspects such as flexibility, decisiveness, task-oriented leadership, people-oriented leadership, social and communicative skills are important to the ensure the best performance of young officers in the modern military environment. Selection and training cannot work miracles in developing these abilities but the current limits of improvement are ill defined. The selection process itself aims mainly to filter out those undesirable or unsuitable elements from the applicant group. Training is intended to create an effective fighting force from the raw recruit and to continue the process of selection by identifying those individuals without the appropriate skills, knowledge or attitudes for the ultimate role. A major issue concerns how much training can modify the raw recruit because many armed forces work on the assumption that their system can mould the new recruit. It is possible that a mis-match may occur in the type of individual which passes the selection system but who is inappropriate for officer selection, so called 'false positives'. No matter how effective the training is it may be impossible to convert the new recruit into a usable officer through the process of training. Evaluation of this process is currently weak because of the inadequate understanding of the new roles required of the recruit

and the relationship between training methods and outcomes.

Because the demands made of leadership are build up around two aspects, the personality-traits and the way those traits are used in practice, the selection-process should also be aimed at those two aspects of personality. Selection tests theoretically measure the potential of an individual but they can be misleading or incorrect. An individual may not exercise their personality traits in their behaviour, because it is measured by questionnaire. The absence of the personality in their actual behaviour may occur for a number of reasons and this is the basis of many criticisms of the trait models of personality (Brunas-Wagstaff, 1998) based on situational or contextual factors.

In the personality assessment commercial airline pilots a similar selection method is being used. This method consists of three parts:

  a) Personality-assessment by using personality-questionnaires.

  b) The assessment centre method (ACM).

  c) An Interview.

Each of these methods has clearly identifiable weaknesses that have been reviewed in the academic literature but together they represent a strong and effective method (Cook, 1998). The authors are particularly critical of the cheap and quick methods which lack task analytic validation in relation to the role or job-function that have been adopted by the more commercial organisations. The significance of the functional demands in determining the effectiveness of a leader was also stressed in Bales (1950) early analysis. The same general view was re-iterated by Fiedler (1964; 1981; Fiedler and Chemers, 1984) who highlighted the importance of the personal characteristics of the leader in relation to the contextual requirements of the group's operational domain. It is felt that the method adopted must be empirically validated by performance monitoring of the selection and training system through an accurate auditing process. If there are no empirical validations of the process used it is likely that litigation may follow failures to select certain individuals, as has occurred in the civil sphere (Cook, 1998).

A. Personality-questionnaires.

First, one should perform an appropriate personality-assessment by using validated personality-questionnaires with appropriate levels of predictive validity. There are a great variety of questionnaires, but the general problem is the poor predictive validity of those tests (.15 to.20). This might not be a problem though, if the personality test is used in combination with other instruments of assessment of personality (like ACM and interview techniques). Another factor to take into account, is the cultural bias of personality assessment. Considering the fact that the young officer is quite likely

to be involved in international operations, like UN-peacekeeping missions, it is wise to choose an internationally used and validated personality questionnaire.

The personality-questionnaire will only be used to assess the way in which the candidate thinks he or she has the possession of certain personality-traits. The danger with the self-report measures is that they are subject to bias because the candidate may respond in the manner they think is appropriate and not as a genuine reflection of their nature. The ability to exercise the traits in skilled social behaviour requires procedural assessment of the individual using the ACM. It is likely that procedural assessment of traits is more difficult to measure accurately in a short time but less subject to faking.

B. Assessment Centre Method (ACM).

Once the personality-assessment is finished, the procedure can be focussed on the way the candidate practices leadership. An ACM that makes use of job-samples is a powerful tool to assess these abilities in practice. The critical factor is the validity of the job-samples. The more the job-sample is similar to the real life situation the more likely it is to be a valid predictor of success on the real job. However, many jobs require domain expertise and it is frequently difficult to take raw recruits with no expertise and provide a rigorous assessment of their likely ability in successfully tackling the actual role.

There are several ways to assess leadership-practice. First, there is the group discussion, in which the candidates have to discuss about a certain subject of their choice. This does not have to be the case, it is also possible to give them a subject to discuss about; it may give the assessor more control over the sort of discussion there will be. If the candidates pick out their own subject they can demonstrate their ability to convey knowledge in a personal area of expertise, as one might hope they would do in military operations after training. If the candidates are given a novel topic to discuss and one which is antagonistic to their own views it may be possible to examine their ability to imagine themselves in their future opponents situation. In addition exercises without preparation help to assess flexibility of thinking styles that is vital to the fast pace of modern warfare. They will be confronted with other candidates who all will have their own views and opinions, there may also be confederates of the assessment centre. In this situation personality aspects like social and communicative skills and personal aspects like decisiveness and assertiveness are important for the way the candidate will perform in influencing the group. It should be remembered that even though officers are in positions of power the perception of the task and the team role in accomplishing the task is a socially negotiated and constructed enterprise. Thus, it is clear that given the social construction of reality the leader must be persuasive because this is the characteristic that

will largely determine the creation of an agreed common goal. This discussion will enable selectors to determine if they can cope with the opinions of the other candidates and how will he or she be able to stress the advantages of their opinions with their communicative and persuasive skills. The behaviour of the candidate should be assessed by psychologists or specially instructed senior officers with a scientifically developed rating or observational methodology. There are real dangers in allowing naïve or untrained personnel to make judgements as they may be influenced by other irrelevant factors. The observation method should be targeted at the qualification and quantification of the behaviour that has been shown to be relevant to the final post. Assessors will use scoring-forms that are made in advance and are based on the analyses of the function the candidate will get in the future. In addition, each additional exercise will only test a limited number of features to prevent the raters being overloaded with the factors they are assessing in the candidates behaviour and to provide more accurate measures of the specific factors assessed in each phase of testing.

The second exercise that can be used to assess leadership behaviour is the performance of a group-task. This exercise can be carried out in a classroom, but also in the field (to make it look more realistic and to add stressors). In fact the possibilities are plenty, as long one takes into account that the prediction of future leadership-behaviour potentially becomes more accurate when the test-situation shows more resemblance with the real situation. The group-task can be made as complex as one desires, or it can be changed half way through solving the problem in to an other problem or goal to be achieved, in order to see how the group-leader can anticipate and react with flexibility to the new situation. Flexibility and management of uncertainty are widely recognised as important features of military leadership. It is also possible to manipulate the assets of the group or the means of communication for instance by only allowing communication to take place by radio, telephone or e-mail. Mediated communication is the norm in military operations and the luxury of face-to-face communication cannot always be afforded. In this exercise it is of great importance to carefully observe, quantify and qualify the behaviour of the candidates. The assessors, as has been stated earlier, should be specially trained psychologists or specially instructed senior officers. There is a great danger in believing that subject-matter experts (SMEs) can simply walk in and identify the features that make their performance effective. As is well documented skilled performers rarely have access, through introspection, or self-monitoring to the factors that make them good in their role.

C. The interview.

The third and last part of the procedure will be an interview. In this interview the vision and motivation of the candidate in respect to leadership-traits can be subject of examination. In order to avoid socially desirable answers by the candidate, the criterion-related interview might be a useful tool. In this type of interview the candidate will have to accompany his answers with examples from his every day-life experience. The speed and confidence of the answers gives some indication of truthfulness of the answers but care must be taken to exclude psychopathic individuals. The authors are indebted to a Clinical Psychologist from the RNLAF for pointing out that many of the features desired in candidates are also present in psychopaths. Thus, Cleckley's (1964) list gives:

1) Superficial charm and good intelligence.

2) Absence of nervousness.

These are key features that would result in psychopathic candidates being included in a sample suitable for leadership. However, subtle features such as:

1) Poor judgement.

2) Failure to learn from experience.

3) Unreliability.

4) Untruthfulness and insincerity.

5) Specific loss of insight.

6) Unresponsiveness to interpersonal relations.

Which are also aspects of psychopathy are not advantageous in officers on the battlefield for obvious reasons.

The answers that the candidate gives, will give the interviewer enough opportunities to form a good picture of the leadership ability and motivation. It may not in and of itself allow the naïve observer to identify potential psychopathic candidates. However, the rigorous assessment process may be sufficient to raise doubts about a candidate's suitability.

Once these three stages of the procedure are done, the most important part of the selection procedure will take place: the construction of the selection result. In a meeting with all the assessors that are involved in the selection-process, all the measured data will be brought together and the end-scores will be calculated over every behaviour-aspect that has been observed. This will be done by using a specially made table of behaviours assessed by every exercise in order to structure the meeting. The scores will be averaged, if desired by using weights for behaviours that are found to be very important. The pattern of weights should be deduced from priorities derived from observational assessments of good and poor officers, subject-matter-experts and from empirical studies. In the meeting the assessors can exchange opinions about the candidates they have observed.

The goal of the meeting will be to make a leadership-profile of the candidates, that is based on the opinion of

the candidate himself about his leadership-traits (personality-questionnaires), the effectiveness and efficiency of his leadership behaviour in practice (ACM) and the impression the candidate made on a professionally skilled interviewer in respect to his leadership-traits.

The example that has been described here makes it possible to get a good picture of the leadership-abilities of a candidate and to make his stronger or weaker points visible. In respect to the weaker leadership-traits, this can be used to build a tailor-made training program for the candidate if possible. However, given the emphasis on cost in training regimes it may be better to adopt a strict criterion and too exclude any doubtful candidates requiring extensive training. Indeed, it may be argued that those candidates who have not successfully developed the appropriate characteristics in the normal course of events are unsuitable because of their relatively low levels of self-knowledge.

There are of course disadvantages in this selection method. It will take a lot of time to prepare for the selection-process and to carry it out. Therefore, the process is very expensive but so may be the consequences of selecting the wrong type of candidate. On the other hand the predictive validity can be better than using personality-questionnaires and interviews alone which do not give sufficient insight into procedural aspects of skill and one should take into consideration the costs involved when the wrong candidate is being trained and the catastrophic costs associated with leadership errors in warfare. It is especially important when more measurements and tools are combined because the overall picture of the abilities of the candidate will be better. It should be remembered that repeated measurement will tend to reduce sampling errors in a mathematical way which approximates to 1 over the square root of the number of samples. Thus, repeated measures are invaluable to increase the accuracy of the assessment procedure (Cook, 1998).

As is always the case with any selection-process, a 100 % correct estimate of the future success of a candidate in a certain job will never be possible but the current levels of predictive validity suggest there is significant room for improvement. One can only try to reach for the best solution both in respect to the candidate's future and the effectiveness of the organisation.

Conclusions

Leadership traits identified in this paper deviate little from those hypothesised by other researchers. For example, Kirkpatrick and Locke (1991) and Stogdills' (1974) combined list includes factors such as:

Cognitive Ability, Task Knowledge,
creativity, flexibility, adaptability,
independence, self-confidence.

This mix of cognitive and social ability is widely recognised in many papers and reviews, even though the application of trait approaches to selection is somewhat problematic and the predictive outcomes are not astoundingly high (. What is different in the current proposal is the association of superior abilities in metacognitive, social, interpersonal and communicative skills which are required to overcome the vagaries of distributed and mediated communication in military environments. It is argued that the increasing pace of warfare and the powerful capability of the assets used requires distributed command and control. Thus, leadership must be executed outside the face-to-face network of interactions for which people are highly practised and extremely knowledgeable. This separation of command authority and implementation authority is of critical significance to leadership skills in the areas outlined.

Distributed command and control requires the promotion of confidence in the team, the clear communication of task goals, the development of plans, the management of assets in a dynamic environment and the sensitivity to recognise and resolve doubts among team members. Analysis of mediated communication suggests this is not simply the duplication of normal exchanges which occur in face-to-face interactions (Mantovani, 1996; Cook, Angus and Campbell, 1999). This difficulty in automating and computerisation of organisational systems has been studied for some time (Jones, 1995) but with greater interests in more recent times. So far it is clear that technology is simply not the answer to human process issues because the individual brings to the technology the skills they have developed elsewhere. Skills are highly application specific and they may not be useful in mediated communication environment. In all aspects cognition is situated within a social and organisational context which drives the way that interactions take place via technology (Mantovani, 1996). Early textbooks such as that of Scrivener (1994) gave clear indications of the likely problems with the new mediated communication and the indication that interactions via the technology required a new set of skills layered on top of those normally applied to dialogue management in face-to-face exchanges.

The significant impediments created by distributed teams and resources are recognised in the popular management textbooks (Fleming, 1996) who suggest that reminders of goals, promotion of team vision, encouraging communication and effective time management are critical leadership skills in such situations. In addition, it is stressed that a suitable method of working is developed to enable distributed working and that requires evaluative judgements and insight on the part of the leaders. For many this is what new software initiatives are intended to resolve but so far many of these initiatives have been spectacular failures as a result of ineffective leadership (Martin, 1995; Mantovani, 1996). It is clear that even where technology does not mediate the relationship between

people it can subvert normal relationships because it draws attention away from normal social interaction (Greatbach, Heath, Luff and Campion, 1995).The same diversion of social interaction has been observed in cockpit systems (Sarter and Woods, 1994; Mosier and Skitka, 1993; Bowers , Oser, Salas and Cannon-Bowers, 1996).

Thus, it has been demonstrated that organisational practices can interact with new technological capability to produce both negative and positive outcomes (Blackler, 1995; Woods, Johannesen, Cook and Sarter, 1994; Goguen, 1994; Hollnagel, 1993).

Postscript

It was obvious in the light of the response to the oral presentation of the paper in discussions and the questions posed directly in response to the presentation that many of the audience failed to grasp the underlying thrust of the paper as presented. Much of the aim of the proposed changes to the selection mechanisms and early assessment processes are a reflection of changes in the real-world operational problems that were largely overlooked in other presentations delivered at the conference.

The first great change is the rapidity of modern warfare and the power of the weapon systems which require coordination at a lower level. This has been recognised in the recently published work of Vandergriff (1999):

> "The culture must adjust its course before the army can execute the high tempo and rapidly changing warfare of the future."

> Vandergriff (1999, p. 240).

And:

> " In the future, war may be short and intense and require important decision making at many different levels of command. Much depends on proper planning and preparation to ensure that leaders and their units can perform in the best possible way during the initial days of combat."

> Vandergriff (1999, p. 241).

The second change is the politicisation of warfare in humanitarian missions organised by the UN and more recently in the actions of NATO in Operation Allied Force. There are many reports confirming the general trend towards the possibility of high level interference (Hewson, 1999):

> "too many politicians and high-level commanders had to give their authorisation to the ATO and asked for the smallest details to be supplied."

> Lt. Col. Paul "Horse" Mulder (1999, p. 54).

Officers in the field, at sea and in the air must be aware of these issues to act within the appropriate mandate and with the acceptable level of risk related to co-lateral damage and blue-on-blue kills. Thus, in allied force there were early suggestions that mistakes were made, with a wingman shooting away the tail of the lead pilot in error (Hewson, 1999) and later in the conflict civilian casualties in the train crash after a bridge was hit and the mistaken attacks on fleeing refugees in a tractor convoy. These errors created significant tensions within the NATO coalition and awareness of these higher level issues at lower levels, where the actions are implemented is vital. It should be noted that speed is a vital factor in military success (Leonhard, 1999) and this is generally agreed by many authors of operational analysis textbooks on warfare. In Allied Force, the issue of speed is well illustrated by the tasking of a cruise missile by a U2 reconnaissance unit onto a MiG-29 on an airport runway (Hewson, 1999). Even if this was a wooden dummy the devastation of all such targets, real or fake, would have had a significant effect on Serbian morale, underlying the use of speed and power as a potent shock weapon in the modern battlefield, as military analysts have suggested (Bateman III, 1999).

Overlying the issue of politicisation of the battlefield is the requirement to increasingly use multi-national assets to pursue warfare because no single nation has the capability or the political mandate to pursue individual action (Penney, Doke and Warwick, 1999). Thus, officers need to work in a diverse multi-national environment and recent reviews suggest that planning in these environments is less than effective (Mulder, 1999).

In addition to the changes in the modern battlefield many of the audience seemed not to have considered the recurring issues in warfare.

For example, the first goal of any warfare group is to attack and destroy the communication, command and control elements of the opposing forces, which means that effective warriors can quickly re-organise and re-group around a new leader. As an example of this in the Operation Allied Force it has been suggested that the Serbs sought to attack a JSTARS or an AWACS aircraft to undermine the Airborne Command and Control Structure (Hewson, 1999) and in-directly degrade the effectiveness of the air warfare elements in combined operations. Whether this was the case or not this type of action is one of the most fundamental aspects of warfare in the air, at sea or on land. Thus, one must select officers that can show leadership under such difficult conditions and these represent the acid test of leadership measured in leaderless groups. Those situations in which individuals are nominated as a leader, after a short period of acquaintance could be useful as well, because of the increasing requirement to establish rapport across multi-national forces. The fundamental point is that selectors must address the changing requirements in the

operational domain or they will select individuals who are obsolescent or inappropriate prior to training or deployment. It is clear that the current predictive validity of many tests is remarkably low suggesting that the requirement is poorly understood, the tests are inappropriate or both are the case.

With increasing downsizing in most military forces the room for error is narrowing because most cannot afford to allocate training budgets to inappropriate candidates or they must accept a lower quality of individual post-training. The latter is clearly unacceptable given the catastrophic consequences of inadequate and inappropriate leadership in the face of a demand for a zero-loss war. Thus, greater steps must be taken to ensure that selectors understand the requirement in the operational domain and match the selection and training to that requirement with empirical evidence.

In summary, we propose that selection and training must change to address new requirements in the operational domain. It has long been established, for nearly forty years, that good leaders as intelligent, articulate, and socially skilled with even the most basic of leadership textbooks identifying these factors for selection (Heller, 1999). More insight is required to identify those characteristics required for modern and future domains of operation because the present match between selection and outcomes is relatively weakly associated as indicated by moderate predictive validity in the tests applied.

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