

## **Status of Military Psychology in India: A Review**

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A review of research in the field of Military Psychology and an appraisal of the recent trends indicate an ever increasing interaction of the sub-discipline with other applied fields of psychology and the discipline of psychology in general. However, a distinct lack of scientific reporting of the studies in Indian context is evident. The present paper is an attempt to overview Military Psychology and traces its growth over the years in India. It discusses the challenges of research in Military Psychology and the unique opportunities that the field provides. Recent researches being conducted in the discipline world over are reviewed in the context of current endeavours in the country, and a perspective for the future is proposed. A need for enhancing interaction with the academia and popularising the sub-discipline is underlined.

**Military Psychology** is a unique sub-discipline of Psychology that determines its boundaries not by subject content or methods of conducting research, but by the requirements of the user (the armed forces). A review of the available literature reveals the abundance of research being carried out the world over, although there is a marked lack of such published research in the Indian context. The present paper attempts to fill this void by providing an overview of the developments in the field of Military Psychology in India from its origin till date. This paper emphasises the uniqueness of Military Psychology research and highlights its prospects in India and challenges it presents. In view of rapidly changing world scenario and modernisation of warfare the scope of psychological research specific to the military is discussed in the context of similar research developments the world over.

Military Psychology is defined by the application of psychological principles and theories to the military context (Mangelsdorff & Gal, 1991). It is a broad, complex, and specialised field where knowledge gained from various other branches of psychology (for

example, experimental, social, clinical, organisational, and personality) converges. Military Psychology includes a vast array of activities in psychological research, assessment, and treatment. Concerns that are relevant for industrial-organisational psychology and the issues of assessment, diagnosis and treatment as understood through clinical psychology form important aspects of Military Psychology endeavours, since developments in these research areas directly help the military in managing the huge manpower inherent in it. Yet, Military Psychology, by virtue of its vastness and variedness, goes much beyond these and explores specific and special concerns unique to the military environment. Although largely guided by the users' requirements, Military Psychology does not restrict its research domain to applied fields; it provides researchers with ample opportunity to investigate basic issues of science and to test their application on ground. It is, therefore, a unique opportunity that Military Psychology offers to a researcher to be able to explore the domains of basic as well as applied research at the same time.

Military Psychology has a vibrant bilateral relationship with the discipline of Psychology. The two grow together in tandem—developments and advancements made in one being reflected beautifully in the other. Mangelsdorff and Gal (1991) and more recently Kennedy and McNeil (2006) have traced the growth of Military Psychology in the U.S.A., and the significant contributions it has made to the various other fields of Psychology.

### ***Military Psychology: A Brief Review of Recent Research Trends***

Military Psychology issues and concerns are such that each nation needs to develop its own solutions. However, an appraisal of the research trends in other countries might well serve the purpose of updating knowledge and help keep one abreast. A brief review of recent research reveals the heterogeneity in the area of Military Psychology and allied disciplines. Ensuring psychological wellbeing of the troops and providing clinical intervention in times of crisis has always been a priority. Efforts are continuously being made in adapting clinical approaches to the military requirement. The U. K. Royal Navy, for example, has developed an intensive psycho-educational management strategy for dealing with posttraumatic stress disorder based on peer group risk assessment (Gould, Greenberg, & Hetherington, 2007). The crisis theory (Bar Eli & Tenebaum, 1989) and related approaches are being used for determining individual affect related performance zones (Kamata, Tenebaum, & Hanin, 2002). The crisis theory delineates the uniqueness of each individual's ability to appraise stressful conditions as functional or dysfunctional to his performance, and incorporates self-regulatory behaviours and coping strategies used during the encounter with situations, which vary in stress appraisal. This approach has been found to have practical utility for military jobs that invariably involve functioning in high stress situations (Tenebaum, Edmonds, & Eccles, 2008).

Military performance of a troop depends largely on the nature of its leadership. Psychological research on leadership has dealt mainly with the influence of leadership as an independent variable (Bass, 1990). Motivation to Lead (MTL) is a recent construct introduced by Chan (1999) that incorporates three factors: affective MTL, social-normative MTL, and calculative MTL. MTL has been examined and expanded as a leadership model for the Israel Defense Forces (Amit, Lisak, Popper, & Gal, 2007). Decision making is a critical task for any leader, more so for a military leader since dependent on a military leader's decision are the security of the nation and the lives of his men. Operational psychology is an emerging sub-discipline of Military Psychology that enhances military's combat capabilities by making use of psychological principles and skills to improve a commander's decision making (Stephenson & Staal, 2007).

Military Psychology derives its strength from its multi disciplinary nature and character. Often parallels are drawn between the subject matter and methods of Military Psychology and Sports and Police Psychology. Police and Military Psychology both address the cognitive, perceptual, emotional, and behavioural aspects performance in extreme conditions. Operational and clinical challenges like crisis intervention and stress management remain the same for both, and hence can cross contribute to each other (Miller, 2008). There is a recent emphasis on finding the potential ways of adopting methods and concepts from the disciplines that contribute to Military Psychology. The study of expert performance is one such area where a plethora of research has been conducted in Sports Psychology. Identification of factors responsible for expert performance and designing appropriate training modules and support mechanisms is of vital importance for performance both in sports and the military (Williams, Ericsson, Ward, & Eccles, 2008). Technological and

methodological advancement have led to physiological assessments of expertise in sports psychology. Innovations linking physiology, basic cognitive processes, and performance have led to a finer understanding of factors behind learning and performance at exceptional levels. Applicability of these issues in the military context is being explored and confirmed (Janelle & Hatfield, 2008).

With the changing nature of warfare, the role of military psychologists has expanded manifold. It now extends beyond the traditional areas of expertise like counselling and consultation, and testing and assessment. Preparing for multiple-role relationships while being deployed as an embedded member with a military unit (Johnson, Ralph, & Johnson, 2005), managing the ethical considerations by maintaining a balance between professional commitment and organisational requirements while dealing with mental health issues and clinical consultation within the military unit (McCauley, Hughes, & Liebling, 2008), and providing services to a multi-ethnic, multi-cultural force that has to function effectively in varied environments, with various people the world over (Kennedy, Jones, & Arita, 2007) are some of the challenges for which military psychologists have to prepare themselves.

### ***Military Psychology in India***

Military Psychology is a relatively recent development in the context of India. Psychology as a modern scientific discipline began in India with the establishment of the department of psychology in Calcutta University in the year 1915, closely followed by Mysore (1924) and Patna (1946) (see Pandey, 2001). It was around the time of the Second World War that Military Psychology found its beginnings in India, though on a very low key basis, it was mainly concerned with the selection of personnel for the military. A brief chronology of events that shaped the field of Military Psychology in India is given in Table 1.

**Table 1: A brief chronology of events shaping the field of Military Psychology in India**

Year	Event
1942	Recruitment of Armed Forces Officers integrated at Directorate of Recruiting in the Adjutant General's Branch at the General Headquarters.
1943	War Officer Selection Board established at Dehradun to apply scientific (Psychological) method of selection.
1943	Selection of Personnel Directorate created at the Recruiting Directorate to deal with research regarding new technique of selection.
1944	Psychological method of selection of Other Ranks applied on experimental basis.
1945	Psychological method of selection of Other Ranks applied on functional basis.
1949	Ghosh Committee Report recommended removal of psychiatric interview for officers selection and establishment of Psychological Research Wing.
1949	Psychological Research Wing (PRW) established at Delhi.
1950	Identification of 39 Qualities (grouped into five factors) for selection of officers.
1950	Standardisation of Interview Technique.
1950	Pilot Aptitude Battery Test implemented for testing flying aptitude.
1952	Standardisation of G. T. O. Technique.
1956	Naval Psychological Research Unit (NPRU) established at Cochin.
1962	PRW renamed Directorate of Psychological Research (DPR).
1962	Applied Psychological Laboratory dedicated to psychomotor research and human engineering established as a lower formation under DPR.
1962	Psychological method of selection re-introduced on experimental basis for infantry soldiers.
1982	DPR renamed Defence Institute of Psychological Research

Psychology found a place in the military efforts in the form of application of scientific principles to the selection of military personnel. Although the importance of psychological applications in the military was realised during World War I, it was firmly established by the Second World War. Many countries created behaviour science research groups during this period. The focus of research in these initial years remained on psychological screening, selection and recruitment.

The pioneers of Military Psychology in India faced many unique challenges. Selection of officers and men for the armed forces was one of the major responsibilities of military psychologists. The first problem was of deciding upon the qualities to be assessed before beginning the actual selection process. Job analyses were conducted for the officers and the Other Ranks (Ors) of all the services. Assessors were trained to effectively apply the psychological technique of selection. The psychological tests used for personnel selection were validated on Indian samples before being used. Besides ascertaining the validity and reliability of the selection tools, it was also felt essential that these tests must be adapted as per the needs of the Indian candidates. Many unique and novel adaptations of the original tests were developed and tried. Job profiles were drawn on the basis of job analyses, the impact of training on performance was assessed, the procedure of officers' selection was standardised, qualities of an average officer were delineated, officer quality rating scale was developed, accessibility of the officer like qualities by different techniques was investigated, and job summaries for different jobs were prepared. The three techniques employed for officers' selection- the interview technique, group testing technique, and psychological technique- were gradually refined. Significant research was conducted in the area of intelligence and personality measurement, especially through projective

techniques. Thorough follow-up studies were carried out and selection results were compared with training results to ensure the predictive validity of selection methods. Training modules were also developed for different trades and ranks.

Soon researchers began to venture beyond selection and assessment and took up projects to examine issues that have direct relevance and applicability to the problems faced by the armed forces, like the psychological effect of extreme conditions, factors causing maladjustment to active service conditions, applicability of techniques of social psychology, factors leading military personnel to suicide, etc. Basic techniques for psychological warfare were developed. Some basic research was also conducted, like investigation of the effect of closed in spaces on mental ability, psychological study of flying hazards, effect of distracting noises on visual efficiency, psycho-physiological mechanism in relation to flying, relationship between age and intelligence, factor analysis of the intelligence tests.

Summarily, the initial era in Military Psychology in India encompassed a wide spectrum- from selection, trade allocation, organisational behaviour to man-machine interface and ideology. Importance of leadership qualities in the armed forces officers was realised and various research projects focused on exploring the issues involved in assessment of leadership and training for leadership qualities were undertaken. A framework for training of leadership in the army was developed. Concerns regarding the mental health and psychological well-being of the soldiers began to emerge. Precipitating factors of psychiatric illness in the military were explored. Psychological aspects of sexual deprivation and isolation in the military context were investigated. The problems faced by disabled soldiers and issues pertaining to maintaining their morale were explored.



Concerns regarding the scientific selection of officers and other ranks that emerged as early as the Second World War, and the efforts made to ensure the same, ultimately led to the establishment of an institute dedicated to military personnel selection. The research endeavours of this institute however are not confined to personnel selection. It has now emerged as the first and only premier agency in the country leading the developments in Military Psychology.

#### ***DIPR: Dedicated to Military Psychology***

Defence Institute of Psychological Research (DIPR) is the nodal agency and technical headquarters for the selection of officers for the armed forces. DIPR is the only institute in the country that provides technical assistance to the armed forces in ensuring person-job fit. In the recent years, the role and research interests of the institute have expanded manifold, as has the scope for Military Psychology in the country. As the premier institution in the country dealing with basic and applied research in the field of Military Psychology, the focus of research in the institute is on finding optimum solutions to problems pertaining to the selection of officers, placement and categorisation of men, with a view to optimise the efficiency of the armed forces and to devise suitable standardised tests for personality, intelligence and aptitude assessment. The institute also provides technical training to assessors who man the Service Selection Boards performing selection duties, and monitors and evaluates the selection system, vis-à-vis training and performance of the selected personnel during service career. Another focus area of research is on refining the techniques of psychological warfare, ideological convictions, motivation, attitude, morale, leadership behaviour, job satisfaction and organisational climate. Developing a better understanding of human factors in man-machine systems and studying the effects of extreme environmental conditions on the psychological adjustment,

efficiency, and well-being of service personnel forms the essence of many research studies undertaken by the institute. Optimising manpower planning with particular emphasis on personnel policy researches in various organisations of Defence, and providing help to service headquarters and other civilian organisations on problems pertaining to human behaviour and selection of personnel adds to the value of the institute.

The institute functions with a vision to emerge as a Centre of Excellence in Military Psychology. The mission is to excel in psychological research related to personnel selection and training of assessors for the same, enhancement of leadership effectiveness, motivation and morale for operational efficiency of the forces, and human factors. The Institute has developed three core competence areas in Military Psychology-personnel selection, organisational behaviour, and human factors.

#### ***Building the Human Capital: Personnel Selection***

The most frequent application of psychology in the military has been reported in the domain of personnel measurement (Steege & Fritscher, 1991). A parallel can be drawn between military personnel selection and personnel selection decisions for various other organisations, though an unbiased examination of the situation reveals the uniqueness of military personnel selection. The enormous size of the organisation necessitating recruitment practically around the year itself presents an issue. The varied nature of duties that military personnel are required to perform and the varied environmental conditions under which optimum performance is expected of them make it pertinent that the personnel selection decisions are based on robustly valid measures that have firm theoretical bases. The ultimate criterion of battle efficiency further adds to the uniqueness of the situation and poses a challenge to the psychologists to

ensure valid selection. Personnel selection research involves development, standardisation, and validation of personality, intelligence, and aptitude tests, as well as design, development and evaluation of comprehensive personnel selection system. Training of assessors in personnel selection, and validation and evaluation of the selection system by conducting regular follow-up studies also form a part of personnel selection research.

The introduction of a scientific selection system for the Armed Forces furthered the evolution of Military Psychology in India. Candidates appearing for selection as officers are assessed for their cognitive abilities and personality qualities. Intelligence, aptitude, and personality tests have been developed and standardised for use in selection and task allocation of officers and other ranks of the Army, Navy, and Air Force. Although the technique employed for the selection of officers has remained largely unchanged through the years, various up-gradations, modifications and validations from time-to-time have ensured a selection system that has proved its worth through the years by giving the country efficient and effective officers who have done the nation proud during the wars that the country has faced since independence.

Besides development and adaptation of projective tests for the selection of officers, various test batteries with different formats have been developed for specific selection requirements, such as a non-verbal mental ability test (that consists of items related to 'odd man out', 'analogies', 'series' and 'matrices'), a language aptitude test (consisting of 'spelling clues test', 'memory - immediate recall & retention', and 'translation'), and a test battery comprising of verbal intelligence test, English language proficiency test, teaching aptitude scale, and assessment of personality for the selection of instructors.

Keeping pace with the developments in the discipline, certain recent improvements that have been introduced in the area of personnel selection recently are — replacing intelligence testing with comprehensive cognitive profiling of the candidates appearing for officers selection, development of an objective personality measure for initial screening, and development of a selection battery for other ranks selection. An armed forces officer needs to perform in a versatile manner in varied circumstances. A test that merely measures the candidates' reasoning ability or academic intelligence can not be utilised as a screening criterion. Hence, a Comprehensive Battery of Cognitive Abilities (CBCA) has been developed for the selection of officers in the armed forces (Defence Institute of Psychological Research [DIPR], 2007a). The existing intelligence tests have been reviewed and a new model has been developed that assesses different factors of cognition, namely concept formation, attention, decision making, memory, reasoning ability, imagery, and problem solving. Based on the PASS (planning, Attention-Arousal, Successive and Simultaneous) Model by Das, Naglieri, & Kirby (1994), the CBCA assesses an individual's competence at three levels of cognitive functioning- registration, processing, and higher order processing.

The armed forces receive thousands of applications of young men and women desirous of recruitment as officers. A practical need is to devise a scientific method of screening that would effectively shortlist the potential candidates, since it is not possible to put all the candidates through the five day tedious selection schedule currently in use, due to resource crunch and paucity of time. Any conventional intelligence or personality test that is commercially available does not provide a viable option for the purpose as maintaining the secrecy and sanctity of the test material is an essential requirement. The screening method needs to be effective and

efficient at short-listing the candidates, at the same time ensuring objectivity and minimising ambiguity in responses and assessment. Such methods (DIPR, 2007b) have been developed and standardised to simplify the decision making process and to provide a more focused approach in assessment.

Candidates applying for selection as officers are assessed for different personality qualities. The method of assessment cannot rely on objective measures as controlling social desirability would be difficult. This huge task of development of projective tests with various parallel sets and their standardisation on appropriate sample has been successfully undertaken by the defence scientists. The process doesn't end with test development but continues in the form of efforts to ensure uniformity and objectivity in assessment since the projective techniques rely heavily on subjective evaluation by individual assessors. Accurate operational definitions of the dimensions of assessment and various shades of behavioural manifestations within each dimension are absolutely essential.

The Indian armed forces have been using projective personality testing for selection of officers since long. Although the personnel below the officer rank (PBOR) constitute a large and integral part of the armed forces, their selection has been largely based on non-psychological techniques, probably due to constraints of time and expenditure. Also, since it is not feasible to use projective measures, due to their inherent limitations, a need was felt to develop a separate measure suited for the purpose. With the aim of ensuring minimum wastage of non-financial and financial inputs incurred on selection and training of soldiers, enhancing their motivation to work, and ensuring effective measures to screen out individuals with potential negative tendencies, it was planned to introduce psychological screening of the other rank applicants before recruitment and allocation of a specific trade.

A selection battery comprising of a cognitive and a personality test has been developed for the selection of the Other Ranks in the Indian Army (DIPR, 2008a). The cognitive test has been developed in non-verbal format using matrices type items keeping in view the educational level and diversity of applicant population. Assessment of personality provides the basic data to assess the applicant to ensure person-job fit, that is, suitability of the individual to perform a given task, his willingness and ability to learn and get trained, acquire and upgrade his skills. The personality measure for other ranks selection has been developed in the situation judgement format in a bilingual form (Hindi and English). The selection battery has been validated and is in the process of being implemented.

Personnel selection decisions for the Indian military have direct involvement of psychologists. The defence psychologist not only functions as a test constructor and researcher but also as an active observer of the applicants, interpreting their behaviour and significantly contributing to recruitment decisions based on prediction of traits. Besides, a defence psychologist also has the opportunity to conduct research into the effectiveness of selection procedure by validating his/her selection decisions against actual performance criteria. Further, an opportunity also exists to delve into basic research regarding selection and placement issues and develop new technologies or to find application of emerging technologies in the military. The area of military personnel selection is dynamic and is constantly growing in the wake of the new research findings across various domains of Psychology. No other organisation but the military presents such a vibrant field where the psychologist has to make positive use of emerging technology and knowledge in Psychology and fit it fruitfully in the context of existing socio-political structures and organisational requirements.

***Enhancing the Human Capital:  
Behavioural Issues in the Organisation***

The ultimate aim of the military organisation is to achieve maximum defence effectiveness. This can not be achieved merely by ensuring induction of effective and efficient manpower. Ensuring satisfaction of individual needs has become as important as attainment of organisational goals in the face of changing social milieu and resultant societal transformation. Ensuring optimum satisfaction for the incumbent is an invariable requirement for ensuring person-job fit. Catering for individual needs without compromising on organisational goals is a challenge that military psychologists face; they mitigate it by actively influencing the decision makers in order to shape the organisational policies and ethos based on empirical research findings. Maintaining and enhancing the human capital is one of the major tasks performed by military psychologists.

Military is a very big and complex organisation characterised by a complex structure, several sub-units, diverse functions and activities, many job routes, and many employees (Katz & Kahn, 1978; Kilmann, Pondy & Slevin, 1976). Optimal utilisation of the human capital in such an organisation is definitely a challenging task. The sheer size of the military and the control it has on its personnel makes it mandatory to define and co-ordinate manpower policymaking, to pay attention to organisational values and structure, and to optimise the utility and placement in manpower allocations. Like any other organisation, the military also faces issues and problems relating to morale, motivation, job-satisfaction, job-stress, leadership behaviour, organisational climate, beliefs, attitudes, value systems, training, communication, conflict and negotiation. Various doctrines have been developed for the enhancement of motivation and morale of the troops. Studies in the area of motivation have investigated the role of different motivational

variables operating in military environment. These studies indicate upon the strategies to be adopted for fostering optimum work environment and maximising organisational efficiency. In the same endeavour, studies have been undertaken to examine the effective leadership styles for military environment, to determine the strategies for boosting the morale of troops under conditions of anxiety and stress, and to improve job satisfaction among the service personnel. The problems of indiscipline and the remedial measures to inculcate discipline have also been investigated. Psychosocial correlates of stress and techniques for its effective management have been thoroughly studied and self help guides have been developed for the soldiers as well as officers (KamaRaju & Singh, 2006; Misra, Asnani, & Archana, 2006).

Man power policy making and development of the human capital is one of the core areas which have received direct and significant influences from the research findings in general psychology. Issues of leadership assessment and development of leadership qualities, for example, reflect the impact of emerging knowledge in the field. In the initial years, leadership was conceptualised as based on innate personality qualities. Later researches (For example, Bass, 1990) however emphasised the situational factors, particularly nature of the task at hand and structure of the group. A resolution of these approaches has resulted in current emphasis on studying the interaction of personality traits, group structure and situational factors in assessing leadership. The emergent paradigms in leadership research applied to the unique context of military leadership have led to many interesting research findings.

Military Psychology ensures the safety and security of the nation, not only by aiding the combat efforts, but also in subtler ways. One such effort that continually goes on in war and peace times alike is formulation and



conduct of psychological operations (Psy-Ops). Psychological warfare is a planned use of various psychological paradigms to influence the attitudes and actions of friendly, neutral and enemy populations important to national objectives. It is a communicative programme to affect others' perception, attitudes, and opinions and influence their behaviour patterns. The area of psychological operations include studying the need, goals, strength, and weaknesses of the target population in order to design appropriate propaganda strategies, and monitoring the media to eradicate enemy's influence and indoctrinate civil and military populations in favour of ones' own nation. Processing the information received from the intelligence agencies, and suggesting appropriate operational methods of communication also forms an aspect of psy-ops.

Various researches have been conducted in the field that have led to a better understanding of the psyche of the local population in the border areas, have provided strategies to mould their opinions favourably, and developed specific action plans for dealing with the unique social circumstances that arise due to the multi-religious, multi-ethnic, multi-lingual character of Indian polity. The impact of enemy propaganda and rumors on the troops and on the local population has been studied. The psychological consequences of long term deployment in insurgency or low intensity conflict (LIC) areas on the soldiers have also been investigated. Organisational strategies and self help techniques to deal with the negative consequences of prolonged deployment in these areas have been delineated in order to optimise operational efficiency. The recommendations given by a recent study (DIPR, 2007d) that investigated the negative behaviours among the troops harming self or colleagues emphasised on improving organisational communication, facilitating interpersonal interaction, improving provisions for basic facilities, improved pre-

induction screening and better training, and ensuring optimum organisational climate that would conserve mental health of the soldiers along with ensuring operational efficiency.

The interrogation system used for gaining information from captured and surrendered insurgents has been evaluated and improvements based on psychological techniques have been suggested. Manuals detailing the techniques of interrogation have also been developed (Singh, Tripathi, & Asnani, 2007; Patnaik, Dhawalgi, & Mandal, 2007).

### ***Optimising the Human Capital: Man-Machine-Environment Interface***

Human factors engineering is a specialised area within Military Psychology that studies the man-machine interface, and strives to achieve optimum equipment design. It aims to enhance the performance and effectiveness of the weapon and machine systems by optimising human performance through system design. A specific area of cultural ergonomics within the realm of human factors engineering, deals with the influence of cultural factors on equipment effectiveness. Studies regarding artificial intelligence also form an important aspect of the domain. Areas like problem solving, planning and information fusion are the focus of recent researches. Issues of combat and non-combat stress among the military personnel also become a part of the domain of human engineering when the focus is on optimising equipment design in order to reduce stress. The entire research effort on human factors engineering aims to develop tools and techniques for human performance assessment and establish human-factors engineering design principles, that would result in optimally high system performances when applied in the field by the troops (Chatelier & Alluisi, 1991).

A Computerised Pilot Selection System (DIPR, 2005) has been developed that assesses various cognitive and psycho-motor

abilities required by pilot aspirants. The tests included in cognitive battery are- verbal reasoning, non-verbal reasoning, numerical ability, and spatial ability. The psycho-motor tests included are- tracking test (sensory motor apparatus), central velocity test, pursuit tracking, dual task, memory, vigilance, speed anticipation, size anticipation, colour naming and dot estimation.

A study has identified the human factors (psychological variables) that predict better driver performance (DIPR, 2007c). Computerised tests have been developed to assess the cognitive and psychomotor predictor variable of driving performance. Specific research studies have been conducted on the design of arms, fatigue of tank crew, human engineering aspects of aircrafts and military vehicles. Studies have investigated the human factors involved in operating naval submarines. Further, effect of ambient noise on the mental performance of naval crew and underwater pressure on cognitive abilities of divers has also been investigated. Researches related to human factors involved in motor transport accidents, workload of air traffic controllers and dual task efficiency have led to significant implications for the armed forces. Identification of job specifications and operator requirements in Indian Navy for evolving a proper man-machine interface, and configuration of human factor demands in high performance aircrafts as compared to earlier vintage aircrafts form further instances where human engineering plays an important role.

The very nature of military duty entails probability of deployment in extreme environmental conditions and exotic locales. Though technology has aided the soldier by providing him with sophisticated weaponry and equipments and means for survival in the harshest of conditions, it is the soldiers who has to maintain optimum effectiveness in order to reap any benefit of these advancements. Extreme variations of temperature, intense

noise, working in confined spaces, being exposed to battlefield smoke, high acceleration levels experienced by aviation crew are some of the factors that negatively impact human performance. Human factors engineering strives to minimise the negative impact through equipment design. It also investigates the psychological impact of extreme environmental conditions on the operational efficiency and psychological adjustment and well-being of soldiers.

Military psychologists have been working in collaboration with other sciences. Various research studies have been completed in collaboration with other establishments within DRDO that investigate human adjustment and performance in extreme environments and climatic conditions. Acclimatisation status and effect of appetisers on energy intake in high altitude have been investigated. A delegation of military psychologists recently visited Antarctica to investigate the psychophysiological changes occurring during the stay there. Several inputs on cognitive and perceptual processes, emotion, and personality were derived from the research findings that have extensive implications for selection and training of personnel in extreme, isolated and unusual areas (DIPR, 2008b).

### ***A Perspective for the Future***

As an applied field within the subject of psychology, Military Psychology makes use of and benefits from developments in almost any and all sub-fields of psychology. Working primarily for the benefit of the military organisation, the defence psychologists in India face the dilemma of striking a balance between indulging in the search of scientific truth (basic research) and making use of science (purported basic research). The efforts in the field are largely need based (applied) rather than idea-driven (basic), through which systems, tests, training and operational modules are delivered to the users. Driven by product oriented preferences the researchers

in the field also emphasise on intellectual capability building. The need based product oriented nature of research does not confine the avenues for technological up-gradation and the latest developments in the science are incorporated into the studies. Context specificity of behaviours in the military set up is adequately tapped by evolving specific and particular methods in each case. The uniqueness of Military Psychology research is that it explores non-traditional constructs through non-traditional and innovative methodologies.

A review of the research endeavours in Military Psychology highlights this unique situation. Psychological assessment for personnel selection in the military, for example, has certain specific requirements, and calls for customised test development for measuring non-traditional constructs. The tests developed in such manner have to be validated in simulated conditions in many instances. Certain special recruiting situations need single use non-standardised tests to be developed. Profile based selection is needed for certain other personnel. Traditional tests and rule bound scoring systems might not serve the specific needs of the military, and hence scoring based on non-specific rules based on the unique requirements of the situation is developed. Similarly, the area of strategic behaviour and psychological operations has to deal with critical issues in propaganda and counter propaganda, conflict resolution in low intensity operations, social engineering for attitude change in insurgency affected areas, strategic negotiation and interrogation strategies, attribute specificity in military leadership, factors affecting alienation in youth, rumour formation and mass hysteria, social triggers to fratricide/ sibicide, critical factors in military morale. The exploration of cognitive processes involves establishing threshold of mental workload, loss of situational awareness, multitasking and emotional regulation, task-specific cognitive

profiling, camouflage detection, cognitive restructuring in high altitude, cognitive engineering for high-tech weapon systems, and cognitive failure in suboptimal conditions. The varied and novel research questions and issues arising out of such domains might not have any readily available answers, calling upon the scientists involved to explore and develop new methodologies. Such endeavours invariably lead to generation of an enhanced knowledge base that progresses the discipline of Military Psychology.

The perspective planning for the defence of the nation has brought to focus the issues of changing nature of warfare. Short, high-tech wars along with challenges of dealing with various low intensity conflicts are expected to change the nature of warfare in the future. Need for developing special forces and evolving leadership adaptability to effectively operate in uncertain environments has been recognised. Compatibility of the soldier in dealing with hi-tech challenges and achieving complete integration with the team for goal achievement has to be ensured. Also effective strategies are to be evolved for dealing with the threats posed by Nuclear-Biological-Chemical (NBC) warfare and managing the consequences of such disasters. These requirements have necessitated the change of focus in Military Psychology from retroactive management to proactive preparedness. The preparedness modules have been developed in a gradual and stepwise manner, emphasising on preparing the soldier for non-conventional warfare and LIC management (Step I); preparing soldiers against psychological warfare and development of a centre for psychological operations (Step II); and preparing soldiers for extra-territorial warfare and global missions and selection of strategic forces (Step III). These modules would guide the future research efforts in Military Psychology. The focus of research in Military Psychology, in the coming years, therefore is expected to be on upgrading the

personnel selection system, selection and training of troops and civilians for psychological operations, training of soldiers for global and network centric operations, preparing programmes for social engineering and cognitive hacking, designing of tactical-operational- strategic doctrine for psychological operations, developing cognitive engineering and cognitive retraining modules for hi-tech environment, sensory deprivation and functional impairment.

Military Psychology has unlimited avenues to grow in this country. The special geo-political location of and socio-cultural circumstances in India give the defence psychologists ample opportunity to conduct research studies of basic and applied nature. The nature of problems in Military Psychology is such that solutions developed by a country are not usually accessible by other nations, and even if accessible, have a limited applicability. There has been no dearth of financial and intellectual resources for the discipline of Military Psychology in India. It has made much headway since its beginning, yet a lot of challenges remain. Certain specific areas that pose a challenge to the science of Military Psychology can be identified. There is a need to enhance the capabilities for proactive preparedness by developing threat detection systems, prediction and forecast models. Expertise needs to be developed for managing and reducing the ill-effects of various stressors faced by the military personnel. Ways of evolving and training effective leaders who are adept at handling such crises is also a challenge. The expertise developed by Military Psychology in dealing with and managing the psychological after effects of disaster and trauma needs to be broadened. The benefits of such expertise has to percolate to the civil populations, not only for managing the disaster post-event, but with the aim of enhancing the resilience, to better face the stress and minimise the trauma.

Creating an interface with other sciences like bio-engineering and computer sciences, developing a research environment to foster idea-driven concepts and search for their applicability to find solution to ground level problems, and going beyond pre-fabricated research designs to address new problems further add to the challenges. Also, growth of the discipline is possible only in interaction with the overall happenings in the field of psychology. It is very disheartening to know that there is not a single University Department in India that offers a course in Military Psychology. Military Psychology, though rarely visible to the common person in India, is continuously striving to enhance its capabilities in an effort to do the best in the service of the nation. It is a challenge for the military psychologists to find further avenues where there can be fruitful interaction with the academia and researchers working in the field of psychology.

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