TECHNOLOGY FOCUS
टैक्नोलॉजी फोकस
An In-house S&T Bulletin of DRDO
https://www.drdo.gov.in/technology-focus
Vol 33 | Issue 2 | March-April 2025 | ISSN No. 0971 - 4413

PIONEERING MILITARY PSYCHOLOGY RESEARCH FOR INDIA'S ARMED FORCES

"Empowering the Human behind the Machine"

Technology Focus highlights on the technological achievements in the organization covering the products, processes and technologies.

March-April 2025
Vol. 33 | Issue 2 | ISSN No. 0971-4413

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Distribution: Pratyaksh Sharma

Defence Institute of Psychological Research

Charting New Horizons. . .

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From the Desk of Special Editor

I take pride to highlight the significant achievements of Defence Institute of Psychological Research (DIPR), a premier laboratory under Soldier Support System cluster of DRDO spearheading research in the specialised domain of Military Psychology. DIPR has made significant contributions in the areas of selection, training, and has also rendered support to Indian Armed Forces through conducting seminars and training for psychological well-being of the soldiers.

The teams at the DIPR have made sustained R&D contributions in developing indigenous psychological tools and solutions for the last seven and half decades. The Laboratory has been at the forefront of developing and continuously refining the Officer Selection System, playing a crucial role in shaping the future leadership of the Armed Forces. Through rigorous research and innovation, DIPR played a vital role in optimising human capital of our armed forces.

Since its inception as Psychological Research Wing (PRW) in 29 Aug 1949, the mandate of the Laboratory kept continuously evolving by adding many new dimensions and grew in strength and scope. A wide range of psychological products, research outcomes and interventions developed by DIPR find proud place in the inventories of the Armed Forces.

I am glad that there is a considerable spin-off utility of DIPR's expertise. The institute has rendered expertise and technical help to many national institutes of repute including that of Central Armed Police Forces, National Security Guard, Indian Coast Guard, Ministry of Home Affairs, Cabinet Secretariat, UPSC etc.

DIPR conducts Interviewing Officers (IO), Group Testing Officers (GTO) and Technical Officers/ Psychologists courses for selection of Assessors responsible for evaluating and selecting the military leaders of our country. Through its expertise in military psychology, DIPR ensures that the selection process remains scientific, objective and aligned with the evolving demands of defence landscape.

As we continue advancing technologically, the solutions which DIPR is providing to the Services are inherently state-of-the-art. I have no doubts that the Lab will thrive, flourish and sustain as a global leader driving cutting edge R&D in Military Psychology.

I commend the DIPR team and urge them to keep pushing the boundaries to set new benchmarks in their field.

Dr UK Singh
Distinguished Scientist and
Director General, Soldier Support System

From the Desk of Guest Editor

It is well known that Indian Armed Forces function in world's coldest Himalayan regions, long lasting sea and underwater missions, marshy areas, jungles, deserts and other inhospitable terrains. The contours of responsibilities of our Armed Forces, associated external and internal security challenges in guarding nation's vital interests are numerous & varied.

In the ever-evolving field of defence and security, cutting-edge technology and advanced weaponry play a crucial role. However, at the heart of every successful military operation lies the most vital asset - "the human element". No matter how sophisticated machines become, their effectiveness is ultimately determined by the cognitive, emotional and psychological readiness of the personnel operating them. Ensuring that soldiers, officers and defence personnel are psychologically prepared, resilient, and well equipped to handle high pressure situations is as important as providing them with the best technology. This is where the psychological principles and applied aspects of military psychology comes into play - shaping the selection, placement, training and overall psychological well-being of armed forces personnel.

The DIPR has been at the forefront of R&D in military psychology, and with over 75 years of sustained research contributions, DIPR has evolved into a leader in this critical field. DIPR's core mandate revolves around the selection of commissioned officers and the screening of personnel for specialised roles, ensuring that individuals best suited for the demands of military services are chosen. However, its contributions go far beyond selection. The institute plays a pivotal role in enhancing training methodologies, providing psychological support and conducting research on leadership, civil-military interoperability and perception management.

Additionally, DIPR leads research studies for promoting psychological wellness among troops and their families for extending the required psychological support necessary for a balanced and resilient force. The institute also delves into culturally sensitive and inter-cultural adaptation strategies, which are crucial in today's globalised military operations.

Furthermore, gender integration in military settings, aviation psychology and human factors research are key focus areas that contribute to optimizing performance and efficiency within the forces. The Computerised Pilot Selection System (CPSS) remains the backbone for the selection of candidates for the flying branch of the Armed Forces. DIPR's leadership in continuous training of asssessors and standardisation of selection system has been instrumental for evolving ingenious solutions & strengthening psychological support to the Indian Armed Forces. The spin-offs of DIPR's research work has benefitted Central Armed Police Forces, security agencies and other civilian organisations of national repute.

In this remarkable journey of excellence, DIPR has been pioneering advancements in military psychology, fortifying the strength and strategic capability of India's Armed Forces.

Dr Arunima Gupta
Director, DIPR

PIONEERING MILITARY PSYCHOLOGY RESEARCH FOR INDIA'S ARMED FORCES

History has amply demonstrated that military engagements worldwide have consistently been a transformative phenomenon, whether for defence or dominance. At the heart of every operation, conflict or war stands the soldier - 'the human element' whether on the frontlines or shaping outcomes from a distance. This enduring presence underscores the critical importance of military psychology as a vital field for R&D for safeguarding a nation's sovereignty. The vast and complex spectrum of human capabilities differs greatly from person to person, making it essential to apply psychological principles extensively in the selection of armed forces personnel to ensure the right fit for the demands of military service.

The nascent steps and seeds of psychological research for armed forces was sown well before independence with establishment of Experimental Board at Dehradun way back in 1943. After independence, the lab became part of Defence Science Organisation and was known as Psychological Research Wing (PRW), founded in 29 Aug 1949 under the Ministry of Defence. Dr Sohan Lall, appointed as the Chief Psychologist in the Ministry of Defence, architected the R&D in military psychology in India.

The main role envisaged for PRW was to conduct research in Personnel Selection Methods, to develop and standardise tools for selection of personnel at Service Selection Boards (SSBs), maintain selection data and relevant statistics and to train the assessors for effective functioning at SSBs. The PRW made a significant contribution in various areas related to armed forces and since its inception, the mandate of the institute kept continuously evolving by adding many new dimensions and grew in strength and scope.

The PRW was designated as Directorate of Psychological Research (DPR) on 28th June 1962. During the same year, Applied Psychological Laboratory (APL) was established as its lower formation. Naval Psychological Research Unit (NPRU) at Kochi which had been established in December 1956 under Defence Science Laboratory (DSL) was made a part of APL in 1962. Later in 1963, an Ideology Group was constituted in DPR to study problems related to Morale, Motivation and Operational efficiency of the Armed Forces. APL and NPRU were merged into DPR on 26th August 1967. DPR took on new areas of research related to morale, ideological convictions, group effectiveness, leadership behaviour, job satisfaction, high altitude, motivation, attitude, anthropometrics, civil military relations and other problems related to Armed Forces. Meeting these challenges successfully, Directorate of Psychological Research (DPR) grew into a full-fledged independent Laboratory and was designated as Defence Institute of Psychological Research (DIPR) in October 1982.

The core mandate of DIPR is the selection of commissioned officers and screening of personnel for specialised roles and it further fortifies Indian Armed Forces by pioneering research in multiple domains and research verticals including Leadership, civil-military interoperability, perception management, preventive and promotive psychological wellness of troops and families, cultural sensitive and inter-cultural adaptation, gender integration in military settings, aviation psychology and human factors.

DIPR plays a pivotal role in optimising human capital within the armed forces by applying psychological expertise and has also extended its reach to Central Armed Police Forces (CAPFs) and other key national institutions. DIPR has collaborated with many academia and research institutes of national and international repute. The advanced research and tailored interventions ensures identification and selection of Right Fit for high-stakes environments.

With 75 years of sustained R&D excellence, DIPR has established itself as a leader in military psychology and is now pioneering new frontiers by driving psychologically driven - technology enabled solutions to empower the Man behind the Machine and further strengthen the Armed Forces of India.

COMPUTERISED PILOT SELECTION SYSTEM (CPSS)

Military aircrafts are complex, integrated with an array of advanced onboard avionics, stealth technologies, flight controls, secure data-links, payloads and precision strike weapons. In modern fighter aircraft, the pilot functions as a systems manager controlling aircraft systems and with significant technological advancements, individuals are required to correctly perceive the information presented to them through various displays and instruments from several onboard sensors and combine the same with flight data precisely in real time during training, operations and while handling emergencies which places significant cognitive demands on the pilots.

A state-of-the-art Computerised Pilot Selection System (CPSS) has been jointly developed by Defence Institute of Psychological Research (DIPR) and Aeronautical Development Establishment (ADE) with support from IAF for selection of military pilots for flying branch of Indian Armed Forces.

The embedded microcontroller-based CPSS with built-in security features is used to comprehensively evaluate the candidates' cognitive and psychomotor skills by subjecting them to perform concurrent multiple tasks and ensures objectivity in results and uniformity in the degree of difficulty faced by the candidates.

Cognitive Testing Hall

Psychomotor Testing Hall

3D view of CPSS Prototype

Features

Cognitive Testing System

- Assesses the pilot-specific cognitive abilities
- Customised membrane keyboard

Psychomotor Testing System

- Assesses the psychomotor coordination (multi-limb and eye-hand coordination)
- Ergonomically designed cockpit with control joystick, rudder and throttle for operation
- Audio-visual warning display for multi-tasking

Instructor Station

- Initiation of the tests and seamless operations
- Real-time monitoring of the system functionality
- Multimedia-based centralised projection system

Centralised Server System

- Central server for data storage with real-time backup
- Dual redundancy for networking

Major Achievements

- Inducted in Air Force Selection Boards (AFSB) on 28 Nov 2014.
- 300 Cognitive and 60 Psychomotor systems installed and commissioned at Air Force Selection Board (AFSB) at Mysore, Dehradun and Varanasi.
- 500 Cognitive and 100 Psychomotor systems equipped with upgraded hardware and software is currently being installed in all five AFSBs.
- LAToT of CPSS hardware to M/s.Bharat Electronics Limited.
- Appreciation certificate from Hon'ble Raksha Mantri during SAMARTHYA indigenisation event at Aero India 2025.

EXPORTABLE PILOT APTITUDE TEST SYSTEM (ePAT)

The demanding nature of defence aviation requires individuals with exceptional skills, focus and mental fortitude. The Pilot Aptitude Test (PAT) is of critical importance as it assesses the fundamental abilities required for military pilots.

ePAT System

The test ensures that individuals with the required psychological attributes are selected as military pilots which helps to maintain the operational readiness and aviation safety, essential for protecting national interest.

DIPR has decades of in-house expertise and has carried out extensive R&D in pilot selection systems, a domain which has immense export potential. For meeting the demands of pilot selection systems globally, DIPR has designed and developed a new Exportable Pilot Aptitude Test System (ePAT) for export. The key aspects of the System include:

- Evaluates relevant cognitive and psychomotor abilities required by the military pilots.
- Assesses the information processing speed, selective attention, vigilance, working memory, and eye-hand & multi-limb coordination.
- Portable test set-up with ease of maintenance and equipped with centralised monitoring.

Features

- USB-based membrane keyboard with built-in security features.
- Integrated portable ergonomically designed test set-up with COTS joystick and pedal for seamless testing.
- Psychometrically validated assessment software.
- Provision to test large number of candidates simultaneously with automated generation of test scores and candidate's profile.
- Health monitoring system as part of instructor station with centralised database for monitoring and conducting tests efficiently.

Major Achievements

- Prototype of ePAT system has been developed.
- Demonstrated during AERO INDIA 2025.

COGNITIVE BATTERY FOR OFFICER SELECTION (CBOS)

Comprehensive cognitive assessment is crucial in the selection process, as cognitive ability is a reliable predictor of job performance across all roles. It helps identify candidates with critical thinking, problem-solving and learning abilities essential for success in a dynamic work environment. This is especially important for the Indian Armed Forces, where quick decision-making, adaptability, and strategic thinking are vital for operational effectiveness.

Computer Testing Hall at SCS, Bengaluru

Features

- Paradigm shift from intelligence testing to comprehensive cognitive assessment
- Multi-modal assessment (visual as well as auditory)
- Item bank has been developed and standardised.
- Computerised testing system
- Objective assessment
- Bilingual instructions
- Trials and examples for each test
- Automatic scoring and report generation

Cognitive Abilities

Major Achievements

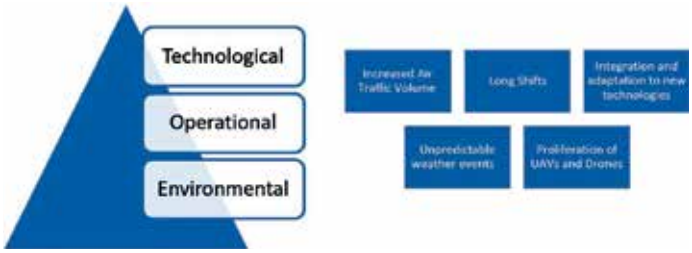
- Handed over to Director General Recruiting and ACOP (HRD) on 21 March 2023.
- A hyper converged IT test bed for field trials of tests and systems developed by DIPR has been set-up at Selection Centre South (SCS), Bengaluru.

AIR TRAFFIC CONTROLLER SELECTION SYSTEM (ATC-SS)

Air Traffic Control (ATC) is the fulcrum of aviation, ensuring the safety and efficiency of every flight, by directing aircraft movements and providing crucial information to pilots. ATC plays an indispensable

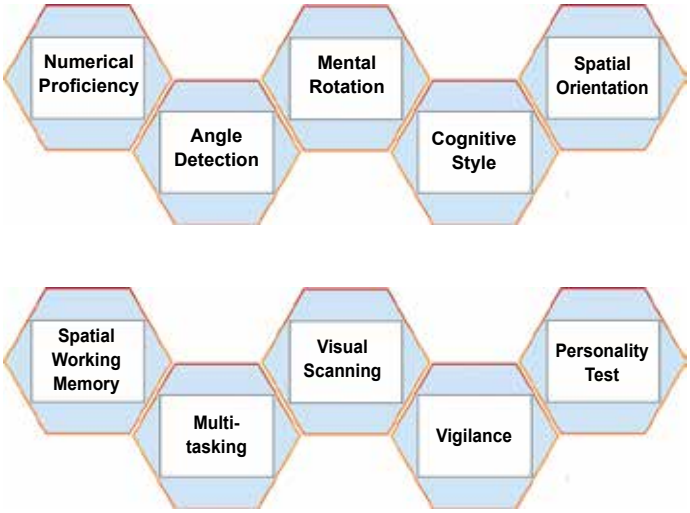
ATC Selection System

role in maintaining smooth and secure aviation operations. The selection system evaluates the skills and abilities of individuals to determine their suitability as ATC.



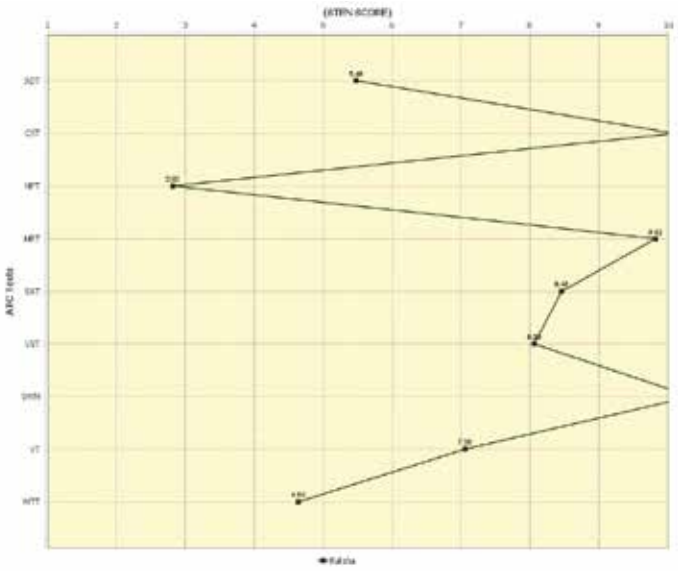
Modern Day Challenges for ATC

The ATC is a specialised role which demands high cognitive skills. A computerised test software has been designed and developed to assess varied psychological abilities/attributes.



Features

- User friendly interface
- Separate User and Admin applications
- Automated scoring
- Provides individual profile separately for cognitive and personality tests.
- Generates detailed reports with statistical insights



Cognitive Profile

Major Achievements

- The computerised test has been developed.
- Spin-off for civilian applications and identified as a product with export potential.

COMPUTERISED PSYCHOLOGICAL SCREENING SYSTEM (COPSYSS)

The Computerised Psychological Screening System (COPSYSS) was specifically developed to address the unique requirements of pre-deployment screening of the Central Reserve Police Force (CRPF) personnel to the security sensitive job(s).

COPSYSS was designed and executed with the goal of providing a streamlined, effective and scientifically valid method for assessing the psychological suitability of CRPF personnel.

The development of COPSYSS involved a detailed and thorough design process, incorporating inputs from psychological experts as well as from the CRPF regarding the specific needs of their personnel. This ensured that the system was tailored to suit the distinct nature of the job requirements.

The system was developed with efficiency in mind, optimising both the administration and the delivery of the psychological tests, while also ensuring that collected data could be processed and analysed quickly and accurately.

Features

The Main Modules

COPSYSS comprises of two main modules - the test administration system and automated test delivery system. Both modules are crucial for the successful implementation and operation of the screening process.

Module I - Test Administration System

- The test administration system provides foundational infrastructure for managing the entire screening process.
- One of its key features is the management of testing candidate's batches which allows smooth organization and tracking of test takers.
- Additionally, the system is capable of generating automated test reports, which can be used by psychological experts and CRPF personnel to evaluate the results of the tests quickly and comprehensively.

Module II - Automated Test Delivery System

- Focused on actual delivery and administration of the test.
- Designed to include the features of computerized test delivery, suitable for individual as well as group administration.
- User-friendly, ensuring that participants can easily navigate through the process.
- Each test begins with displaying clear instructions, providing the participants with a comprehensive understanding of the testing procedure.
- The inclusion of a practice set, with a feedback on performance ensures that the participants are well prepared before undertaking the actual test.
- Web-browser based system which runs on client-server architecture.
- Ensures conducting thorough, reliable and efficient psychological evaluation.

Major Achievements

Handed over to the DG, CRPF on 08 Aug 2023 and inducted.

CROWD BEHAVIOUR ANALYSIS-DECISION SUPPORT SYSTEM (CBA-DSS)

DIPR identified 122 psychological markers of crowd behaviour. These markers in combination suggest the probability of violent behaviour in a crowd. With the technological advancements, a Crowd Behaviour Analysis-Decision Support System (CBA-DSS) was developed on a set of crowd behavioural markers by using Artificial Intelligence based Visual Surveillance Tool, which may help security forces in decision-making process to manage and control the violent/ disruptive behaviour of crowd.

Detection of Crowd Behaviour

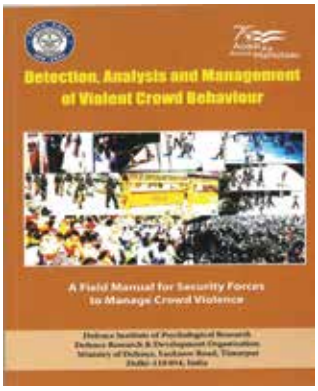
Leveraging deep learning algorithms, data integration and real time monitoring, CBA-DSS combines multiple trained AI models with a non-invasive approach to detect predefined crowd behaviour markers in live or stored video feeds. These algorithms extract features from pre-processed video frames and analyse them using predefined parameters and thresholds to identify potential triggers for violent/disruptive behaviour within a crowd.

Features

- The system can predict the probability of violence in a given crowd video on 10 crowd behaviour markers allowing timely intervention and management.
- Provides a non-invasive monitoring process, promoting better acceptance and compliance during the screening process.
- Offers a cost-effective solution for detecting various markers that indicate the presence of critical visual cues in a given crowd feed.

CBA-DSS GUI

Marker Weightage Setting Module



Field Manual

- It can be deployed in restricted or sensitive areas.
- User-friendly interface allows crowd screenings to be conducted across different settings, enabling manual configuration of video feed mode, relevant markers, threat weightage and more.

Major Achievements

- System has been developed and validated
- Demonstrated to the Users
- Field Manual on Detection, Analysis and Management of violent Crowd Behaviour
- Copyright granted in 2024
- Patent filed jointly with DIAT, Pune
- ToT has been initiated

COMPUTERISED ADAPTIVE TEST FOR EMOTIONAL STABILITY (ES-CAT)

DIPR has developed a Computerised Adaptive Test (CAT) for the assessment of emotional stability for in-house competency building. In comparison to the conventional testing procedure, where candidates must answer every question regardless of relevance to their ability level, CAT offers a personalised testing experience.

This adaptive mechanism ensures that the question being administered is neither too easy nor too difficult, providing a more accurate tailored assessment of the examinee's true theta level. CAT algorithm makes use of Item Response Theory (IRT) and continuously assesses the theta based on each successive item administration and selects the next question accordingly from the item bank.

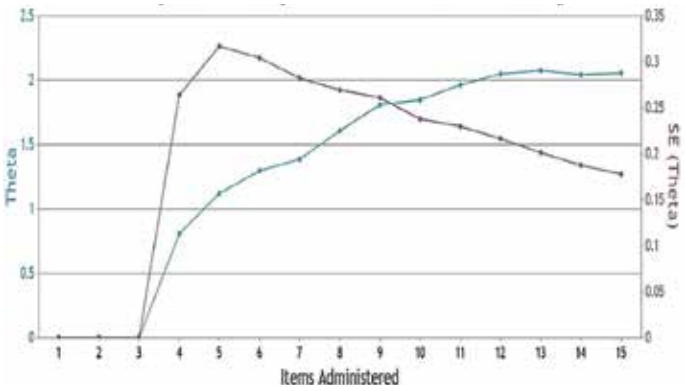
Features

- Tailored assessment approach.
- Better precision in the psychometric assessment.
- Time and cost effective.
- Better engagement of the examinee in terms of maintaining higher motivation and interest and

thereby reducing the assessment anxiety.

- Better control of item exposure and test content balancing.

Development of the prototype was carried out in-house at DIPR. Item bank was developed by utilizing the data primarily from student sample. Performance of the CAT for emotional stability was assessed through post-hoc simulation by using the true theta under different threshold (standard error) of theta estimation. The findings indicate that the ES-CAT provides valid assessment of the construct.



Computerised Adaptive Test for Emotional Stability

Test Demo of Computerised Adaptive Test

Major Achievements

The R&D would pave the way for development of advanced psychometric tests based on CAT and IRT.

APTITUDE CENTRIC TRADE ALLOCATION SYSTEM

Men are the frontline guardians of Indian Armed Forces and are required to be fit, both physically and psychologically. To test their suitability as per their job, Aptitude Centric Trade Allocation System is developed by DIPR. This system facilitates in determining the most suitable candidate for a particular trade by assessing the aptitude of the candidate.

Features

- Assesses cognitive and psychomotor skills
- Reduction of wastage and cuts out long periods of training
- Computerised and user-friendly system
- Reliable, valid and objective
- Effective predictor of future achievements

Aptitude components

ORTAS and BAS

Major Achievements

- Other Rank Trade Allocation System (ORTAS) Version 1.0: Implemented in the eight Arms and Services in 2010.
- ORTAS Version 2.0: Customized based on the specific requirements of the Arms and Services and implemented in 2015.
- ORTAS Version 3.0: Implemented in 2017.
- Branch Allocation System was handed over to Principal INA on 05 August 2021 at INA, Ezhimala

PSYCHOLOGICAL SCREENING TOOL (PSYSHOT) FOR SPECIALISED ROLES IN THE INFANTRY, INDIAN ARMY

Specialised roles within the Infantry are critical to the modern Army's ability to operate effectively in diverse combat environments. These roles ensure that infantry units are not only versatile but also capable of addressing complex challenges, executing precise missions, and adapting to evolving warfare dynamics.

Psychological Screening tool 'PsySHOT' has been conceptualised by DIPR in collaboration with Infantry School, Mhow.

The tool has been scientifically validated through a collaborative process involving subject matter experts, field trials and on-site evaluations with support from Army Training Command (ARTRAC). It aids in identifying right fit for specialised roles in Infantry in the Indian Army.

Interaction and Data Collection

Features

- Assesses the cognitive abilities and personality attributes for the specialised roles
- Test developed and standardised using scientific methods
- Ease in Administration
- Provides overall grade for each candidate
- Automated scoring tool for instant result generation

Major Achievements

- Handed over to the Commandant, Infantry School, Mhow on 03 Oct 2024 and inducted.
- A new computerised version (C-PsySHOT) with additional psychological tests is in advanced stages of development.

COMPUTERISED LANGUAGE APTITUDE TEST (CLAT)

The process of learning a new language involves some rules such as getting familiarized with words, scripts and understanding the grammatical rules to form a meaningful statement. The aptitude tests are developed to measure these abilities which are required to learn new language and one's potential to learn a new language is assessed.

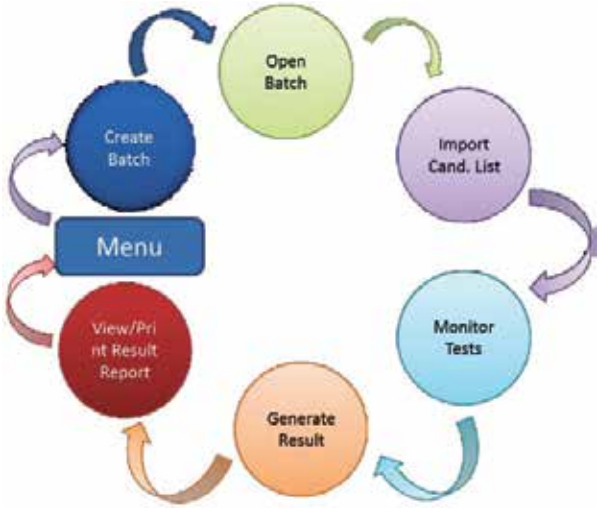
Language Aptitude Test (LAT) has been developed by the DIPR for the Indian Armed Forces. This test is computerised.

Features

Language Aptitude Test has two parts:

Part-I

- Immediate recall
- Spelling clues test
- Translation from English to new language
- New language to English
- Delayed recall



Administrator Module

Test demo of CLAT at Panchmarhi

Part-II

- Symbol recognition
- Script learning and writing
- Decoding script

Major Achievements

- Test has been standardised
- Every year, Language Aptitude Test is conducted for Armed Forces pesonnel

COAST GUARD ADAPTABILITY TEST (CoGAT)

In a world where the war fields are heavily dominated by technology intensive systems, the man behind the machine has to continuously keep evolving. They themselves have to become a system which is compatible with the range of technologies in their hand.

In case of Indian Coast Guard (ICG), the complexity increases manifolds, as it is not just the technology but also the challenging ship environment where the personnel have to spend days or sometimes even month. Due to this, it becomes imperative for choosing the right man for the right job who is not just able to adapt in the milieu but also can function efficiently and effectively to full potential.

A requirement was projected by ICG to develop a psychological screening test to assess adaptability and suitability of Enrolled Personnel (EP) in the ICG.

Features

- A situational judgement test and situations close to real life experiences were developed so that they can be related easily by the candidates.
- Standardised by using well established statistical methods.
- Gives a single overall score for each candidate.
- Objective scoring and assessment.

Major Achievements

The test was handed over to Indian Coast Guard in April 2024.

PSYCHO-EDUCATIONAL AID FOR COMBATING STRESS (ComBAT-APP)

The operational stress is imminent to the life of a soldier and maintaining the operational efficiency is crucial to his/her combat role.

To sustain the optimal efficiency in soldiers, two offline psycho-educational applications have been developed which are secure, personal and self-paced, thus, providing an optimal psychological support to the soldier with minimal human interface.

Assessment and Management of Combat Stress Behaviours (CSBs)

Positive Psychology-based ComBAT App

ComBAT App

This app has been developed for officers of Indian Armed Forces. Military Leaders have a dual responsibility of managing self as well as their Unit to the best.

Facing the odds, the leaders have to upkeep the morale of the unit and give them a sense of security, trust, control and dependability for each other.

Features

The application is based on an indigenous model of psycho-bio-social markers of combat stress in Indian soldiers.

- Offline application for Android and Windows
- Network independent application
- Five distinct sections to assess and manage combat stress
- Automated assessment tool integrated with management plan: Stressometer
- Unit-based games for team building, trust propagation and motivation
- Guided imagery-based audio sessions for positivity and relaxation

ComBAT Active App

This app is developed for all ranks of Indian Armed Forces keeping in mind the operational stressors being faced by them and training them upon the strategies to counter the same.

It is quite engaging with nearly two hundred interactive psychological activities and offers a wide range of options to the soldiers to pick from reading something meaningful to doing something worthwhile or listen something engaging based on their choice and convenience.

Features

- In-situ psycho-eduactional aid for combating stress
- Offline application that runs without network
- Self-paced, engaging, personal and highly secure
- Text-to-speech facility for optimal usage and multi-tasking
- Two distinct sections for educating upon combat stress: (a) Sainya tanav (Combat Stress), and (b) Prabandhan (Management)
- High sense of user control with (a) Read, (b) Listen and (c) Do options
- Gamified psychological activities in the 'Do', flash cards in 'Read' and guided audios in 'Listen' section
- Temporary memory and storage with no media or contact access and Android & Windows compatible

Major Achievements

- Both these apps are being widely used by the Services.
- Copyright granted in 2018.

GENDER AND MILITARY IN PEACE, CONFLICT AND SECURITY

DIPR research in area of gender and military began with an international collaborative project on 'Integration of women and gender issues in extraterritorial military operations', with DSTL, UK from 2017 to 2020.

The research aimed to study women peacekeeper's role in UN missions and enhance their functional efficiency by providing framework of evidence-based recommendations and strategies for greater integration.

Features

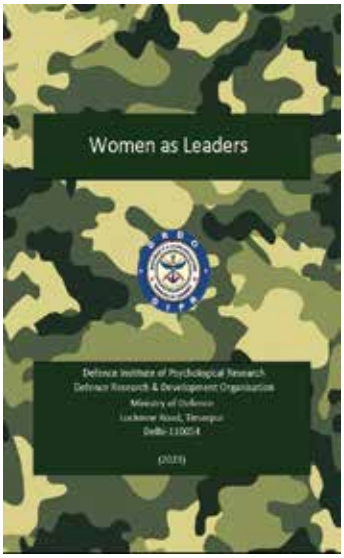
- Effectiveness of integration of women in mission roles towards gender responsiveness and reducing gender based violence.
- Identification of key issues to achieve gender balance in UN peacekeeping.
- Framework of strategies to services for greater gender integration on UN missions and their effective engagement.

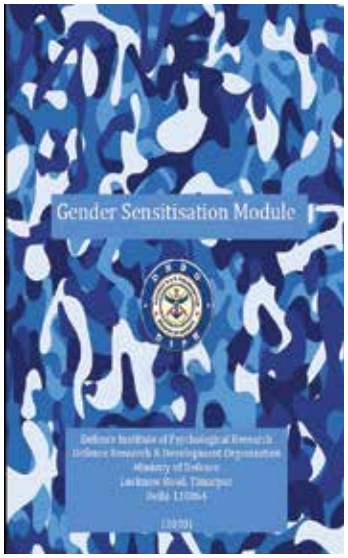
Major Achievements

- Gender sensitisation training Module, Manual on 'Women as leaders'. A collaborative work with UN agencies, WISCOMP, DSTL, and academic institutions.
- The findings and key learnings derived from the research are inducted as lectures on 'Gender, Women, Peace and Security' and 'Challenges faced by women on missions' in UN, pre-deployment national and International courses conducted by Centre for United Nations Peacekeeping (CUNPK), Indian Army by IHQ (Army), Delhi.

Manuals Inducted in Indian Armed Forces

The laboratory has developed training manuals on gender sensitisation and women as leaders for the integration of women in Armed Forces which have been inducted by the Indian Armed Forces and as a spin-off also handed over to the Paramilitary Forces.





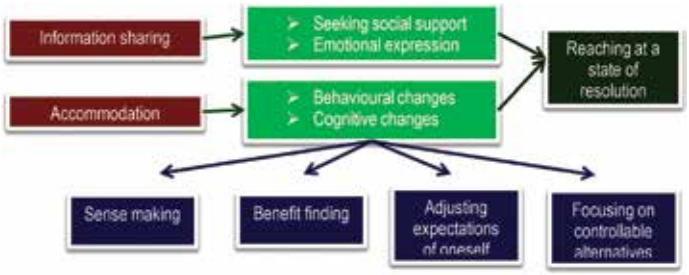
Gender Sensitisation Workshops in various DRDO Labs

As part of DRDO campaign for conducting gender sensitisation of its personnel with the mandate of having a Diversity, Equality and Inclusivity (DEI) at workplace, conducted workshops in different laboratories of DRDO. Around 1000 personnel from all cadres attended these workshops.

SHORT FILM 'CHUNAUTI - LIFE OF A SOLDIER'

Social, familial, occupational challenges faced by soldiers of Indian Armed Forces are unique in nature and therefore there is a requirement to develop a psycho-education tool for educating soldiers at mass level.

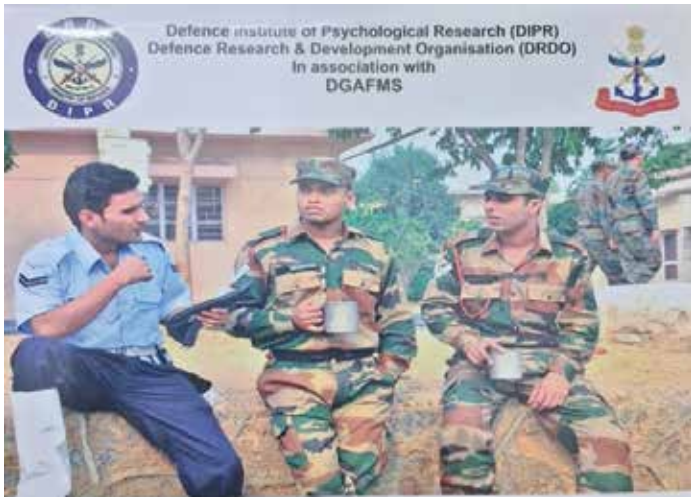
Awareness about scientific ways and means to manage the inevitable routine military challenges is required. To address this the laboratory has developed a 35 minutes short film 'Chunauti - Life of a Soldier' for enabling soldier in appraising routine military challenges in positive way, it also helps soldiers in positive appraisal of their routine inevitable military challenges.



Unified Model for Management of Stress

Features

- The story of the film is based on data and case studies taken from all commands of Tri-services.
- The basic framework of the short movie is to create a psychological environment within the soldier and enable them to perceive routine stresses as eustress and reconstruct cognition so as to develop healthy coping mechanism within the 'Self' of each soldier.
- The film depicts unhealthy thinking styles (named as deemag kee deemak) and scientific ways to overcome negative thought patterns.
- The film progresses with a thematic song summarising the coping strategies portrayed in the film.



Short Film CHUNAUTI

Major Achievements

- The film was reviewed and validated by Psychiatrists, O/o DGAFMS, DGMS (Army) DGMS (Air) and DGMS (Navy), Academia, Media, and Scientists.
- The movie was screened to DGAFMS, DGLS, DGMS (Army, Air Force and Navy)
- 4500 copies of Chunauti has been handed over to O/o DGAFMS for dissemination to the Tri-services.
- Copyright granted in 2018.

COMPUTERISED PSYCHOLOGICAL SCREENING TEST FOR INDUCTION OF NSG COMMANDOS

National Security Guard (NSG) is the elite commando force of the country which is entrusted with the important security responsibilities. Considering the specialised roles of NSG, it was of paramount importance that the personnel inducted as commandos must be assessed for requisite job-specific psychological attributes.

Based on the requirements projected by NSG, DIPR carried out job analysis, identified eleven job-specific requisite personality qualities, developed psychological screening test and alternate sets for their assessment and handed over to the User.

As per the requirement of NSG in 2021, a computerised version was developed and handed over to the User.

Features

- A computerised test based on situation judgement based test items for tapping personality qualities requisite for NSG specific job.
- Auto-generates multiple test sets. Each set of test contains 70 situation judgement-based items.
- The test provides a composite score and detailed profile of every candidate on the personality qualities.

Major Achievements

The computerised test system was handed over to NSG in 2022 and inducted in 2023.

PROBLEM-SOLVING APPROACH BASED PSYCHOLOGICAL ASSESSMENT TOOL FOR SCIENTISTS' SELECTION (PsyAT)

A scientist has multitude of roles and responsibilities which are of scientific as well as techno-managerial nature. The job requires to work in teams, interact and communicate with the Users, Academia, Industry partners and Start-ups among many others.

In view of the varied nature of job of a scientist, it is essential to evaluate a candidate not only on the research aptitude and technical knowledge, but also on certain psychological attributes which can provide inputs about his/her individual and team functioning.

Therefore, an innovative methodology that is, scientific theme-based problem-solving approach has been designed and developed. This approach is likely to augment the research aptitude and technical knowledge based approach in Selection. It is conducted two rounds:

Stage I- Individual Round

- Problem Solving Session

Time duration of problem solving session is 10 mins and narration session is 18 mins approximately for a group of 8-9 candidates.

- Narration Session

Panel of 5-7 experts observe the candidates and assess them on psychological attributes, viz. practical knowledge about the subject, grasp, convergent thinking and creativity.

Stage II- Group Discussion Round

- Time duration of group discussion round is 20 mins approximately for a group of 8-9 candidates.
- During the group discussion round, the panel of experts observe the candidates and assess them on psychological attributes viz. team orientation, initiative, confidence and communication skills.

Features

- The tool comprises of audio-visual animated clips related to subject specific case studies describing a problem statement in the field of Computer Science Engineering (CSE), Electronics and Communication Engineering (ECE) and Mechanical Engineering.
- The high resolution animated clips with voice over are between 60-120 seconds in length and Indian accent has been used for background narration.
- Instructions in audio-visual form for each round.
- The tool can be used for assessment and selection of scientists in any R&D organization.

Screenshot of the Animated Audio-visual Clip

Major Achievements

- Three sets of PsyAT has been developed.
- Manual for administration and guidelines for the Panel of Experts to assess the candidates have been prepared.
- Two Copyrights granted in 2024.

PSYCHOLOGICAL SCREENING TEST FOR SUBMARINERS

The challenges for Submariners are numerous, including extended periods of isolation, technical complexity of operating under extreme conditions and maintaining mental and physical resilience in confined spaces.

Based on the requirement projected by the Indian Navy, DIPR has developed Psychological Screening Test for the induction of submariners in the submarine arm.

After preliminary research and interactions with subject matter experts, Instructors and Sailors, specific personality attributes required by the submariners were identified.

Features

- A bilingual test tapping key attributes has been developed.
- Psychometric properties of the test has been established.
- User manual has been developed.

Major Achievements

The psychological screening test was handed over to Directorate of Submarine Operations, Indian Navy in May 2022.

WORD ASSOCIATION TEST WITH OBJECTIVE SCORING FOR ASSESSMENT OF AFFECT

Affect is a broad term encompassing emotions, moods, preferences, and affective dispositions. Positive affective traits like confidence, optimism, and negative affective traits like anger, depression, and anxiety significantly influence an individual's response to life events.

Researches are being carried out to assess the emotional and psychological traits necessary for officers in dynamic and challenging environments. The Indian Armed Forces' Officer Selection System is in place for over seven decades, is scientifically credible and regularly reviewed for relevance and effectiveness.

In the recent past, research studies are being carried out to enhance personality testing by incorporating modern psychological tests across cognitive, affective and behavioural domains.

An attempt was made to assess affect through Word Association Test (WAT) with objective scoring. It was based on the findings of recent researches which highlight that both positive and negative emotional words enhance cognitive processing. While negative stimuli may capture attention longer, both emotional types facilitate cognitive processing in different contexts.

Features

- The test provides insight about the predominance of positive or negative affective dimension of an individual's personality.
- Eight lists comprising positive, negative and neutral words.
- Words are matched on arousal, valence, familiarity, frequency and word structure.
- Scoring involves assigning weightage to first, second and third response to positive, negative and neutral words. Higher the overall score indicates higher positive affect.
- Reliability and Validity is established.

Major Achievements

- WAT for assessment of affect with objective scoring has been developed.
- The test is likely to aid in the selection process for defense services and general population.

DEVELOPMENT OF GENDER FAIR THEMATIC APPERCEPTION TEST FOR ARMED FORCES OFFICERS SELECTION SYSTEM

In the recent years, the Indian Armed Forces have laid greater emphasis on induction of women at all levels and fields within the Forces. In this regard, induction of women at NDA and training of male and female cadets being held together at Pre-Commission Training Academies across the three Services, a need was felt by the Users to hold mixed batch testing to test male and female candidates at Services Selection

Boards (SSB) together to bring in parity even at the selection stage. The research was initiated by DIPR to explore the feasibility of Gender Fair Test for conducting mixed batch testing.

Features

- A projective test designed for 17 to 25 years old males and females.
- Psychometric properties have been established for the test.
- The methodology developed also contributes to the scientific literature on psychometric test development.

Sample Stimulus

Major Achievements

First Gender Fair TAT has been developed in the Indian context.

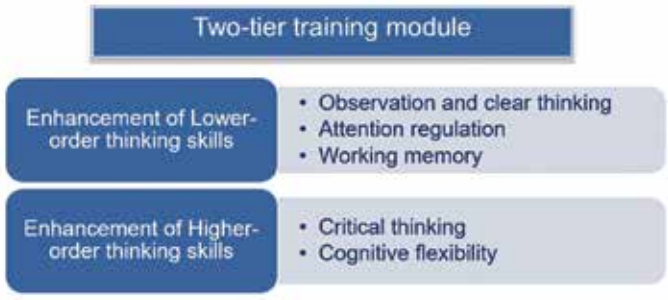
TRAINING MODULE FOR COGNITIVE ENHANCEMENT: CRITICAL THINKING

Critical thinking empowers individuals to analyse, evaluate and synthesize information in a thoughtful and systematic way. It enables people to approach problems with a clear, logical mindset, making it easier to make informed decisions and solve complex issues. The training module developed by DIPR facilitates in optimally utilising higher-order thinking skills like critical thinking for operational effectiveness in the military environment.

Features

Training module consists of evidence-based activities related to

- Attention
- Working memory
- Critical thinking
- Mindfulness



Technical Workbooks

Major Achievements

- Handed over to Brig Military Training in 2019.
- Inclusion of Critical thinking training in the curriculum of NCO Academy.

Editors are thankful to Dr Arunima Gupta, Sc 'G' & Director, DIPR; Dr Nishi Misra, Sc 'G', Additional Director; All Group Heads and other team members of DIPR for facilitating the write-up for this issue of *Technology Focus*.

डेसीडॉक द्वारा प्रकाशित
Published by DESIDOC
RNI No. 55787/93