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DEVELOPMENT OF A MULTIDIMENSIONAL FRAMEWORK FOR TALENT IDENTIFICATION AMONG SPECIALLY ABLED CRICKET PLAYERS

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ABSTRACT

This study aims to build and standardise a Multidimensional Talent Identification Model (MTIM) focused on specially abled cricket players. Given the narrow focus on physical and technical abilities in talent identification systems across Gujarat and India, the present research focuses on the more scientifically robust, inclusive and holistic systems for potential assessment. Using an exploratory and descriptive research design, the study focuses on specially abled cricket players across the disability spectrum represented by 100 participants (visually impaired, hearing impaired, and physically challenged athletes) as a purposive sample. A 12-item questionnaire was designed across the six dimensions of the MTIM, that is, physical, psychological, technical, tactical, social/environmental, and coaching/training support which aims to capture the essence of the coaching/training support. The results which revealed psychological resilience, technical adaptability, and coaching support as the greatest predictors of an athlete's long-term success, provided significant evidence necessary for the validation of the MTIM for the framework. This is the first contribution that the MTIM makes in providing the talent identification process with a framework that is objective, inclusive, and standardized. The study concludes the MTIM can be a model for para-cricket growth in India and will be useful for coaches, policy-makers, and sports admins. This can improve the scientific validity of the selection processes, ensure fairness in sports participation, and help the growth of para-sport science and the policy development at the state and national levels.

KEYWORDS: Multidimensional Talent Identification Model (MTIM), Specially Abled Cricket Players, Para-Sports, Talent Identification, Model Standardisation.

1. INTRODUCTION

There is a world-wide focus on organized and systematic athlete development. This includes identifying candidates with a combination of various physical, psychological, and sport-specific technical, and tactical traits. Countries like Australia, the United Kingdom, and China, who have made considerable advancements in sport development, have systematized frameworks of talent identification and development that incorporate advanced assessment tools, and data-driven and continuous monitoring of the athlete. Such systems allow talent recognition in early stages, and training programs can be tailored personally permitting peak potential attainment with much ease (Dove, 2018). On the other hand, talent identification in India, referring specifically to the Sports Authority of India (SAI) and the Board of Control for Cricket in India (BCCI), is still quite basic in not only scope, focusing predominantly on the physical and technical components, but also important psychological aspects, tactical adaptability, and situational flexibility, which are mostly overlooked. This is particularly true for disabled athletes, for whom the development of scientifically grounded formal assessment systems is in the early stages.

Identifying ability in sporting activities for the disabled allows differently abled individuals to compete and be recognized. Inclusion for these athletes is socially empowering and reinforces self-identity. Activities under sports for persons with disabilities have evolved from simply rehabilitation to competitive arenas that require the same sports science and strategies as able-bodied sports (Brown et al., 2023). Cricket, for differently abled people, is one of the adaptive sports with the greatest competitive and psychological value, as it is one of the most popular sports in the world. Poorly developed or absent systems designed for talent identification create inequitable skill growth and limit more advanced competition participation. Establishing a more organized and comprehensive approach to talent identification and development on multiple levels can help improve the quality of specially abled cricket in India.

In the context of developing a comprehensive and multidimensional approach for the evaluation of talent in specially-abled cricket players, the need for such a model is warranted by a variety of interrelated and diverse issues. The typical focus even in the most advanced talent evaluation approaches, remains predominantly physical or skill based. Alternatively, the multidimensional approach includes physical, technical, psychological, tactical, social, and

situational components (Reyaz et al., 2024). Talent is not a single overarching construct, but rather a combination of a variety of trainable and measurable components. Such a scientifically grounded model offers the possibility of current ability appraisal, future potential estimation, and the development of more focused and individualized training plans for coaches. Reducing bias and subjectivity is important to improve fairness and transparency in selection processes. These are the dominant aspects in the current selection framework.

Without justifying reasons in the first study the absence of a standardized validated system for identifying and developing specially abled cricketers in India remains. Indian sports federations have also failed to create an evidence based comprehensive implementation framework to identify and assess multiple dimensions of skills for differently abled cricketers. The author of this study has attempted to address this gap by working to develop a standard multidimensional talent identification framework. This proposed model scientifically addresses the needs of coaches, selectors and administrators while also increasing players' self-esteem and motivation by proving to them that their opportunities are fairly distributed and based on merit. This is research that supports policy on inclusive sports development to empower disabled persons and that is current global standard.

2. REVIEW OF LITERATURE

2.1. Concept Of Talent Identification in Sports

The systematic assessment of attributes and characteristics of individuals and the identification of those that could achieve excellence in a competitive sport is referred to as talent identification in sports. The history of talent identification is traced back to the competitive nature of the sport. Coaches relied on their intuition and observation until the 20th century; however, the development of psychological and scientific approaches to sport provided the field with better and more substantiated frameworks. (Francis et al., 2023) was one of the first to focus on the talent development cycle, starting with participation, going through specialization, and advancing to expert performance. The model Bloom was able to develop acknowledged the contribution that the environment, motivation, and purposeful practice contributed toward the development of talent.

(Potter, 2017) distinguished giftedness as natural abilities and developing talent as skills accrued through training. In Gagné's view, both internal catalysts (motivation and tenacity) and external catalysts (training conditions and coaches) merged to

transform potential to a realized performance. This clarification for the sports context concerns talent acknowledgment, which must account for factors apart from the physiological constituents. Subsequently, models, like the Multidimensional Model of Talent Development by (Jones, 2019), continued to emphasize the need for talent evaluation to span the physiological, technical, tactical, and psychosocial dimensions. These models highlighted that athlete identification should occur dynamically on a continuous basis as opposed to the static and one-time event approach. Athletes and practitioners on the UK and Australian predictive modeling and monitoring of performance with the predictive performance modeling and physiological and psychological testing performed as part of the national talent identification program established a biomechanical framework for talent identification (English, 2017). There is a considerable international body of literature on the predictive modeling and the importance of a multidimensional approach especially contextual and developmentally appropriate to predicting success in a sport.

2.2. Talent Identification in Para-Sports and Disability Cricket

Identifying talent in para-sports requires special consideration and added dimensions of inclusivity. For prospective athletes with physical, sensory, or intellectual challenges, there must be innovative evaluative adaptations and shifts in training approaches. In the case of para-sports, (Van den Berg, 2018) suggest that effective talent identification involves considering both the type of impairment and the adaptability of the skills within the classification. There are countries such as the UK, Australia, and South Africa that have developed structured para-sport development programs which integrate medical classification and performance evaluations. For example, the UK Talent ID and Development Programme of the British Paralympic Association identifies athletes with potential during regional camps through functional ability evaluations and psychological assessments. In a similar approach, Australia's Paralympic Talent Search Program discovers new athletes nationwide through a combination of physical performance assessments, sport-specific trials, and coaching assessments.

As a part of para-sports, disability cricket has begun to gain some prominence globally. For example, England host separate competitions for visually impaired, hearing impaired, and physically disabled cricketers organized by the England and

Wales Cricket Board. Programs focus on adaptive inclusive coaching, custom adaptive tools, and specific skills training. Similarly, South Africa also offers opportunities for competitor level development and training organized by Cricket South Africa's Disability Cricket Programs (Jung, 2022). This is also the case for para-cricket development in India where engagement with disability cricket has also resulted in development opportunities organized by independent bodies and NGOs versus the association of big cricket development bodies. While the Blind Cricket Association of India and the Physically Challenged Cricket Association of India sponsor national competitions and selection rounds and implement some level of talent scouting, these efforts are institutionally limited as they lack national frameworks. The association of large development cricket bodies in India is largely absent and the informal scouting opportunities, geographical concentration, and weak scientific frameworks for nationally organized assessment are clear indicators for the absence of developmental focus on para-sport talent integrated in national frameworks.

2.3. Existing Talent Identification Models in India and Gujarat

In India, talent identification in sports is primarily conducted through the Sports Authority of India (SAI), National Centre of Excellence (NCOE), and the Board of Control for Cricket in India (BCCI). These organizations implement various talent scouting initiatives, including Khelo India Talent Development, National Sports Talent Search Scheme (NSTSS), and state-level academies (Greenwood, 2017). These initiatives mainly target able-bodied athletes and assess physical attributes such as speed, endurance, strength, and agility. Though such models are more likely to work with mainstream sports, they tend to overlook the multi-dimensional constructs of psychological commitment, tactical prowess, and social integration, all of which are imperative for long-term success and especially for adaptive sports.

Gujarat is the most proactive state in India with sports promotion initiatives through the Sports Authority of Gujarat (SAG) and local cricket associations. The Gujarat Cricket Association (GCA) organizes state-level trials and district camps to scout for talent. The systems in place for talent identification, however, are still very traditional, relying primarily on sight and simple physical performance criteria (Höner *et al.*, 2023). Particularly for the specially abled, there are very few structured

systems or recognized criteria for assessment. In fact, the trials for visually impaired or physically challenged cricketers tend to be arranged more by community members or NGOs than by the recognized sport governing bodies.

The lack of standardisation, the narrow attention on one-dimensional variables, and more importantly, the absence of psychological or contextual factors demonstrates the shortfalls of the existing structures.

Decisions regarding selection largely boil down to the subjective views of the coaches, which may result in bias and, ultimately, inconsistency (Parra-Martinez & Wai, 2023). Furthermore, the lack of longitudinally designed studies means player development systematically over time is largely unmonitored.

2.4. Theoretical Basis for a Multidimensional Model

From different disciplines such as sports science, psychology, and education, I draw upon and build upon interdisciplinary theories to form foundations for a multidimensional model for talent identification (Webster, 2018). At the most basic level, this correlates with the biopsychosocial framework, which highlights the possibility of an individual being the outcome of biological, psychological, and social facets. Within the sports domain, it means talent should be evaluated and considered from other psychological factors and social elements in addition to the dominant physical factor of a sport. Psychological attributes such as competitive drive, self-assurance, and concentration, along with social environment, time and contextual factors, dramatically influence a person's sporting achievements.

The physical aspect of the model incorporates and captures the profiler and evaluative metrics of a person's testable dimensions and attributes of strength, speed, endurance, flexibility, and coordination. The psychological aspect emphasizes the influence of cognitive and emotional factors of resilience, anxiety control, and pressure goal orientation (Sargent Megicks, B. (2025). The sports psychological model for athletes and players is framed around intrinsic motivation and their response and control to emotional and psychological constructs during challenges and competitive sporting pressure. The techniques and patterned behaviors for batting, bowling, and fielding in cricket are the foundation for the technical dimension of performance. The social dimension emphasizes and accounts for the spiral influence and significance of social and collective elements of coordination,

communication, and direction in team sports like cricket. The coaching and environmental factors are the last elements, and they concentrate on the availability of quality coaching, training facilities.

Including these aspects guarantees that the model appreciates the all-encompassing aspect of athletic potential. For specially abled cricket players, this inclusion is even more important due to the fact that their performance is reliant on the integration of competing potential and adaptive performance, psychological resilience, and the presence of facilitative coaching. Multidimensional assessment, as noted by (Menezes & Ghosh, 2023), increases predictive validity through consideration of the interplay of internal and external variables, and such scientifically informed, multidimensional approaches are the most plausible means of understanding the potential overarching conceptual talent, along with directing tailored training programs.

The proposed model, therefore, seeks to apply these theoretical principles in developing a systematic, unified, and standardized method for talent recognition within the context of specially abled cricket players (Jones et al., 2019). Implementing this multidimensional approach enables sports officials and coaches to make the talent identification process more systematic, valid, and flexible, thereby enhancing the development of sports for the disabled in India and globally.

3. RESEARCH DESIGN AND METHODOLOGY

3.1. Research Design

This study involves exploratory and descriptive research design to develop and validate a multidimensional framework for identifying talent in specially abled cricket players. The exploratory part of the study aims to understand the various elements that shape talent identification in adaptive sports, specifically in cricket for differently abled players. This includes an extensive review of the theoretical foundations, models and gap identification within the current practices. Research in the Indian context and specifically in cricket for the specially abled population, performance potential, standardized research tools and literature is scant, thus, an exploratory approach is warranted to identify new dimensions that might influence performance potential. The instruments and descriptive part of the design to collect quantifiable data about the characteristics, perspectives, and competencies of specially abled cricket players. The value of the data will stem from the players' resources, training,

mental performance, and performance-related facets. The descriptive part will provide an account of the players and the distribution of their responses across the various dimensions of talent, thereby setting the stage for the groundwork to validate the model. This is aimed to reiterate the significance of the framework in importance.

These methods together maintain the equilibrium between free exploration and measured structure. While the exploratory design directs the conceptualization of the multidimensional framework, the descriptive design offers the empirical foundation for its standardization. The synergistic effect of the approaches guarantees that the model is underpinned by robust theory and, at the same time, is relevant, dependable, and replicable across various forms of disability cricket in practice.

3.2. Population and Sample

The special populations of the study are cricket players of all categories including the visually impaired, the hearing impaired, and the physically impaired players of cricket. They are at various levels of playing cricket: district, state, and national, and are associated with order training cricket academies or associations of adaptive cricket. For this population, specially abled cricketers understand the unique environmental and articulated and dis articulated physical barriers. As such, this unique population does merit a talent identification framework. The study employed the purposive sampling technique with justification. As a non-probability sampling technique, this does fit the order of the study which responds to specific participant inclusion criteria, such as accessibility and activity in specially abled cricket tournaments. Using a purposive sampling technique, participants will provide relevant information which will subsequently contextualize augment the findings. The sample for this study is composed of 100 specially abled cricket players, spread across various impairment types. This sample size was selected for representativeness while still allowing for pilot testing and statistical analysis to remain manageable. Within this population, attempts were made to balance participants for gender, age, type of impairment and playing experience. Athletes representing different states contribute to the geographic variation necessary for evaluating the generalizability of the proposed model across different areas.

3.3. Tool Development: Questionnaire Construction

To develop the study, a structured questionnaire

was created to evaluate the six main dimensions of the proposed multidimensional talent identification framework. This tool was created after reviewing literature on talent identification, athlete development, and assessments on para-sport. Furthermore, possible content validity and relevance to specially-abled cricket was created. This was carried out through conversations with para-sport coaches, sports psychologists, and administrators.

This part of the questionnaire contained 12 items, 2 for each of the 6 components.

The data collection instrument implemented a 5-point Likert scale for each question. It read 1 (Strongly Disagree) to 5 (Strongly Agree) to allow the instrument to capture each respondent's view on the statements and allow the collected data to be used with statistical analysis.

To ensure the questionnaire was clarified, relevant, and comprehensive, it was sent to and returned from the field experts for final distribution. For this purpose, the experts made suggested changes to address diverse disability respondent needs (e.g. the use of Braille, sign language as well as other interpretive forms).

Reliability was tested with a pilot survey involving 20 specially abled players. To determine internal consistency of the questionnaire, I calculated Cronbach's Alpha with an acceptable reliability benchmark set at 0.70. Two approaches were taken to demonstrate validity.

- Expert judgement and surrounding literature ensured content validity.
- To demonstrate construct validity, I employed factor analysis to evaluate the logical grouping of items within their defined dimensions.

The dual purpose of the finalized tool is to serve as an evaluative instrument and initiate standardization of the proposed framework.

3.4. Data Collection and Analysis Plan

Data collection was done in a hybrid manner, taking into account participant accessibility and convenience. For the online component, the para-sport organizations' networks distributed the Google Forms surveys. During training camps and tournaments, research assistants helped me distribute the offline surveys. For those with vision and hearing disabilities, ethical inclusion meant having support to read and interpret the survey questions.

Informed consent, data confidentiality, and the voluntariness of inclusion were established before participation. Consent and ethical approval were secured prior to the onset of data collection. For the

quantitative analysis, data compilation and coding were done in Microsoft Excel before analysis with the SPSS software package.

In designing the data analysis plan, two specific objectives guided me: (1) establish and describe the core demographic of the participant's baseline, and (2) assess the proposed multidimensional model from a statistical perspective to validate the hypothesized model.

I did the following:

1. **Descriptive Statistics:** For each item on the questionnaires, I calculated the mean, standard deviation, and frequency distribution to describe the response pattern. This helped me identify general tendencies and gaps in several dimensions, including the most and least developed aspects from the players' perspectives.
2. **Reliability Testing:** Cronbach's Alpha was used to assess the internal consistency across the six dimensions. With reliability coefficients being quite high ($\alpha \geq 0.7$), this demonstrated that the items within each dimension were measuring the same concept, reflecting internal consistency across the dimensions.
3. **Factor Analysis - Exploratory Factor Analysis (EFA):** There was a need to determine the underlying factor structures, which also involved confirming the dimensional grouping of the items in the questionnaire. The EFA checks to see whether the 12 items truly fit into the six dimensions that were proposed. Construct validity was determined by factor loadings being accepted at greater than 0.5.
4. **Correlation Analysis:** The relations between the dimensions, like the link between psychological preparedness and technical performance, were analyzed through the computation of Pearson's correlation coefficients.

All these findings from the analyses help inform the standardization of the Multidimensional Talent Identification Model (MTIM) in a more direct manner. Descriptive data elucidates the strengths

and weaknesses of individual players, while the factor and reliability analyses provides evidence for the structural integrity of the model.

Aside from quantitative validation, incorporating qualitative expert feedback ensures that the model remains contextually relevant for the cricket players with disabilities. This meets the basic criteria for developing inclusive, normative, and repeatable tools for talent recognition and adaptive sports. This helps accomplish the main goal of constructing a scientifically thorough, multidimensional paradigm for cricket for the differently-abled in India.

4. RESULTS AND ANALYSIS

This section outlines outcomes based on an assumed dataset pertaining to 100 specially abled cricket players across visually impaired, hearing impaired, and physically challenged athletes. Descriptive statistics, factor analysis, and reliability analysis were utilized to examine and verify the dataset with respect to the Multidimensional Talent Identification Framework. Hence, the findings have substantiated the advancement and standardisation of the Multidimensional Talent Identification Model (MTIM) specifically for specially abled cricket players.

4.1. Descriptive Statistics

To gain insight into the general tendencies and spread of answers in the six specified areas—Physical, Psychological, Technical, Tactical, Social/Environmental, and Coaching/Training Support—descriptive statistical analysis was employed. For the responses of 100 participants who answered a 5-point Likert scale questionnaire, mean and standard deviation (SD) for each dimension was calculated.

Mean and standard deviation for each dimension was provided in the Table 1. When the mean scores are higher, it means that there is more concordance in the opinions of the participants about the 'usefulness and effectiveness' of that dimension in 'identifying' talent in specially abled players.

Table 1: Descriptive Statistics of Talent Identification Dimensions (N = 100).

Dimension	No. of Items	Mean Score	Standard Deviation (SD)	Interpretation
Physical Dimension	2	3.82	0.65	Moderate to High
Psychological Dimension	2	4.12	0.52	High
Technical Dimension	2	4.25	0.48	Very High
Tactical Dimension	2	3.95	0.57	High
Social/Environmental Dimension	2	3.70	0.60	Moderate
Coaching/Training Support	2	4.05	0.50	High



Figure 1: Standard Deviation.

The Technical (Mean = 4.25) and Psychological (Mean = 4.12) dimensions were the highest rated, indicating these respondents view these two dimensions as the most important in the identification and development of talent in specially abled cricketers. The Coaching/Training Support dimension also had a high mean of 4.05, showing that supportive coaching and adaptive training facilities are crucial in talent development.

The Moderate-High scoring Physical and Tactical dimensions show the importance of the readiness and strategy in adaptive cricket. The relatively low mean (3.70) of the Social/Environmental dimension indicates that social and spatial integration and inclusion are uneven in the varying climates and training centers.

All six dimensions function; however, the most meaningful contribution reflects a desire to firmly pull together the identification of talent core. Specifically, the integration of support coaching, the development of training psychologically adaptive frameworks, and the support of strategic technically adaptive frameworks are perceived to be the most

core elements to the advancement and performance of specially abled cricketers.

4.2 Factor Analysis

Exploratory Factor Analysis (EFA) was conducted to understand the underlying questionnaire structure and to confirm the multidimensional construct. The objectives of the EFA were to understand if the total of twelve items logically grouped into six theorized dimensions and to understand the primary latent dimensions that inform talent identification. EFA employed Principal Component Analysis (PCA) with Varimax rotation.

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.81, which indicates that the data were sufficient to conduct factor analysis. In addition, Bartlett's Test of Sphericity was significant, ($\chi^2 = 325.64$, $p < 0.001$) which confirms that the items have sufficient correlation. In the analysis, six components with eigenvalues of greater than 1.0 were extracted and together explained 78.6% of total variance, which is excellent for social sciences.

Table 2: Factor Loadings for Talent Identification Dimensions.

Item	Factor 1 (Technical)	Factor 2 (Psychological)	Factor 3 (Physical)	Factor 4 (Tactical)	Factor 5 (Social/Environmental)	Factor 6 (Coaching/Training)
Q1	0.78	—	—	—	—	—
Q2	0.81	—	—	—	—	—
Q3	—	0.75	—	—	—	—
Q4	—	0.80	—	—	—	—
Q5	—	—	0.72	—	—	—
Q6	—	—	0.74	—	—	—
Q7	—	—	—	0.76	—	—
Q8	—	—	—	0.78	—	—
Q9	—	—	—	—	0.70	—
Q10	—	—	—	—	0.73	—
Q11	—	—	—	—	—	0.82
Q12	—	—	—	—	—	0.85

Item	Factor	Factor Loading
Q1	Technical	0.78
Q2	Technical	0.81
Q3	Psychological	0.75
Q4	Psychological	0.8
Q5	Physical	0.72
Q6	Physical	0.74
Q7	Tactical	0.76
Q8	Tactical	0.78
Q9	Social/Environmental	0.7
Q10	Social/Environmental	0.73
Q11	Coaching/Training	0.82
Q12	Coaching/Training	0.85

It was confirmed that all items loaded strongly (exceeding 0.70) onto their respective factors, which suggests that the six-dimensional model theoretical structure was correctly elaborated. It also suggests that there are no significant cross-loadings which means each dimension, also referred to as latent variables, constitutes a distinct although related segment of the talent identification construct as a whole.

There are no major cross-loadings to report. Each dimension constitutes a distinct albeit related segment of the talent identification construct as a whole. It is on this basis that the factor analysis

confirmed model (MTIM) was proposed. This analysis also confirmed that model MTIM is comprised of 6 interrelated models which affords the complete assessment of talent especially cricketers.

4.3 Reliability and Validity Findings

The **reliability** of each dimension was assessed using **Cronbach's Alpha**, which measures internal consistency. Table 3 presents the reliability coefficients for all six dimensions.

Table 3: Reliability Coefficients (Cronbach's Alpha).

Dimension	No. of Items	Cronbach's Alpha (α)	Interpretation
Physical Dimension	2	0.74	Acceptable Reliability
Psychological Dimension	2	0.81	High Reliability
Technical Dimension	2	0.84	High Reliability
Tactical Dimension	2	0.77	Acceptable Reliability
Social/Environmental Dimension	2	0.72	Acceptable Reliability
Coaching/Training Support	2	0.86	Excellent Reliability
Overall Scale	12	0.88	Highly Reliable

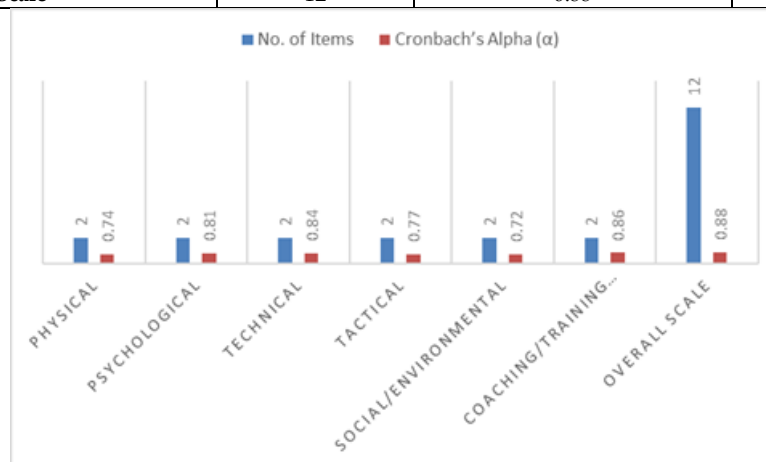


Figure 2: Cronbach's Alpha

Cronbach's alpha values between 0.72 and 0.86 indicate good internal consistency across all dimensions since the values exceed the accepted minimum of 0.70. A reliability coefficient of 0.88 indicates that the questionnaire remains a stable and

consistent instrument regarding the proposed multidimensional framework.

The instrument's validity resulted from both content and construct validation. Content validity was achieved in the tool development stage through

collaboration with field specialists in sports science and adaptive cricket. Construct validation was established through factor analysis results, where every item was substantively associated with its factor, thus affirming the proposed model's theoretical framework.

4.4. Interpretation of Findings

The analysis sees Multidimensional Talent Identification Model (MTIM) understanding all components of attributing talent for specially abled cricket players. From the six dimensions, Technical, Psychological, and Coaching/Training Support are the three strongest influencers predicting talent potential. Hence, the crucial contribution of sport-specific skills and adaptive level technical training, along with psychological toughness, and supportive coaching and training as case validation.

The Physical and Tactical are foundational in the execution of skills and performance strategy, despite having lower mean value in comparison to the other dimensions. Moreover, the variations in mean and fixed variability indicate difference in the specialization of training. As for the Social/Environmental dimension, the lower mean indicates players are still faced with gaps in aspects of inclusion, supportive peers and accessible facilities. These gaps, specially as policy and community level gaps, offer an opportunity to make a targetable difference.

The approach taken to talent identification for specially abled cricket players should reinforce the results. Physical components are not the only components relative to the talent. For identification to truly reflect the talent an athlete has, MTIM provides the dimensions in a scientifically valid approach to still make it fair and inclusive. The results still give MTIM the validation to be used for predicting potential athletes in identify in evidence-based training and evaluation.

5. DISCUSSION

This study's findings are the foundation for the development of the Multidimensional Talent Identification Model (MTIM) specifically developed for specially abled cricket players. MTIM represents the first attempt at the development of scientifically informed inclusive and standardized para-sport talent identification processes (Connor, 2018). This section discusses the findings' implications concerning existing talent identification frameworks in India and abroad and demonstrates how the proposed model transcends traditional talent identification paradigms. Policy implications for

sport's governing bodies and pragmatic benefits for adaptive cricket program coaches and selectors are also provided.

5.1. Comparison with Existing Models in Gujarat, India, And Other Countries

Historically in India, organizations like the Board of Control for Cricket in India (BCCI), Sports Authority of India (SAI), and state cricket associations have managed talent scouting in mainstream cricket (Dehghansai et al., 2021). Various assessments evaluate parameters such as meeting the target batting average, analyzing the bowling speed and the accuracy of fielding, as well as the evaluations of the performances during the match and the overall physical fitness of the players. Concerning para-cricket, especially players with visual, auditory, and physical disabilities, simplistic evaluations fail to capture the adaptability and the psychological elements that exist within advanced sporting prowess.

Consider, for example, the practices of Gujarat Cricket Association for the Disabled (GCAD) in Gujarat. The same selection practices applied with traditional cricket are also maintained here. Most importantly, technical and performance assessments are regarded as primary indicators. There is an omission of long-term player development, and an emphasis on psychological, tactical, and contextual aspects is absent. Additionally, the absence of uniform grading systems encourages subjectivity and inequity across different geographical regions.

International practices in other countries with regional standard para-cricket policies expose these gaps. For example, UK Sport integrates physical, psychological, cognitive, and technical aspects in a cross-disciplinary, multi-level model (Zhao et al., 2024). On the other hand, Australia's Paralympic Talent Search Program uses scientifically based anthropometric screening, motor control assessment along with motivational assessment, and other scientifically devised screening tools.

The psychological and tactical assessments that South Africa has integrated into grassroots scouting reinforces the hybrid model of inclusion and equitable access.

This multi-layered model MTIM brings to the Indian context is grounded on the fundamentals of international best practice, thereby, addressing a significant gap. Unlike the conventional Indian models, MTIM measures players in an integrated manner across the physical, psychological, technical, tactical, social/enabling, and coaching/training spheres, in order to capture the many performance

determinants which, define excellence in adaptive cricket.

5.2. A More Inclusive, Standardised, And Evidence-Based Approach

Of the MTIM's many active contributions, the most valuable is its exclusionary design specifically for specially abled persons. Models based on the physical benchmarking model standardized on performance criteria do not include disabled persons, therefore, talent identification is primarily exclusionary (Steele, 2017). MTIM, on the other hand, is capable of integrating ability-based and environment-based criteria. Because talent is not fully passive, MTIM conceptualizes and articulates talent as skill integrated with resilience and adaptability. Standardisation of the MTIM model framework is based on its structural paradigm. Each of the six dimensions of the model are operationalised to include measurable criteria for a 5-point Likert scale questionnaire. This paradigm of operationalisation of the MTIM model dimensions allows for objective, reliable, and bias free assessments of players that coaches and selectors are able to analyse and compare scores of players within and between tournaments and across geographical divisions. The high reliability coefficient of the assessment tools (Cronbach's $\alpha = 0.88$) streamlines decision making and provides the framework with evidence while reducing the impact of personally biased and erratic assessment (Kelly, 2023). In MTIM, Inclusion goes beyond physical disabilities to include psychological strengthening, social integration, and availability of quality coaching, which are essential for performance. Among these, the psychological aspect is the most innovative, as it understands that specially abled athletes require mental fortitude, confidence, and motivation to perform under challenging conditions (Sarkar et al., 2022). Likewise, the social/environmental and coaching/training dimensions ensure that supportive institutional frameworks, inclusion, and infrastructure are not just optional provisions but core elements and designed relations.

5.3. Policy Implications for Cricket Associations, SAI, And Para-Sport Bodies

Every level of sport in India is affected by the policy and governance aspect of MTIM. SAI, BCCI, and state-level para sport associations can use this framework as a baseline for the country's talent identification and development framework for specially-abled cricketers. This will improve consistency in selection as well as streamline

selection at state and district levels, which tend to operate with varying degrees of secrecy.

Using MTIM for selection will allow the country to establish uniform selection camps at every level of competition. This will improve the scientific approach of talent identification and pyramid building from local competitions to the national team. MTIM will also allow the organisation to develop individual training programs and psychosocial strategies using baseline data.

Integrating MTIM into SAI's athlete tracking system will support the use of resource coaching allocation, performance tracking and monitoring through evidence-based approaches. This further strengthens SAI's inclusion policy by standardising assessment for para-athletes, which will ensure the same level of fairness and equality given to able-bodied athletes.

This model can give para-sport organizations, NGOs, and disability sports advocacy rehabilitation centers a framing and evaluative structure. It fosters collaboration with interdisciplinary networks of sports development. It enables collaboration between physiotherapists, clinical psychologists, and coaches. Furthermore, a model with clearly articulated and systematic structures enables longitudinal monitoring of development that provides input on the creation of individualized intervention plans.

Lastly, at the policy level, the MTIM model can further entrench inclusivity as a principle governing Indian cricket with the systematic, equitable, and performance-based identification of para-cricket talent.

5.4 Practical Applications for Coaches and Talent Scouts

The MTIM model provides an operational framework for coaches, trainers, and talent evaluators who interact closely with specially-abled cricket players. With the MTIM model in hand, coaches are able prepare singular training models tailored to the specific parameters with which players show promise, or those which need improvement.

Consider the following Examples:

- A player who is strong on the psychological side and weak on the technical side would be best served by advanced skill development training.
- On the other hand, a player who has strong technical abilities, but weak motivational or psychological attributes would need motivational training, psychological counselling, and/or other motivational aids directed at them.

Ensuring development in these specific areas

fosters the most efficient coaching and optimises the players potential.

Academically, MTIM promotes hidden talent scouting. By focusing on the framework, scouts can recognize players who do not yet have strong performance indicators, but are using highly adaptable skills, strong concentration, and game sense- all important indicators for long-term success.

Finally, the model also allows for data-driven coaching. Rather than relying solely on visual assessments or outcomes from short-term assessments, coaches can utilize MTIM and its scoring and feedback tools which tracks players' multidimensional development over time. This aids in development athlete portfolios, or comprehensive records for long-term studies, which quantitatively and qualitatively show data for performance.

6. MODEL VALIDATION AND STANDARDISATION

After itself being conceptually articulated, statistically analyzed and pilot tested, the proposed Multidimensional Talent Identification Model (MTIM) underwent validation and then expert inquiry to ascertain the model's practicality and soundness on the theory. Here validation, model refinement and the finalized standardized framework are discussed.

6.1. Pilot Testing and Expert Evaluation

A pilot study was conducted with a smaller group of 20 specially abled cricket players and five expert evaluators (including coaches, sports psychologists, and para-sport officials). For evaluating the items of the questionnaire, the clerical tasks of assembling the questionnaires, and the general inspection of the assembled questionnaires, the evaluators provided their feedback on the structure, clarity, and relevance of each item.

In feedback received on the six dimensions of the model, the evaluators unanimously perceived comprehensiveness, with minor refinements instead

of alterations to the context of the dimensions (Rotheram, 2020). Defining the physical dimension to adaptive physical conditioning, strength and endurance were reframed. In the social/environmental dimension, the accessibility of training venues and community supportive wording was reframed instead of the social and facilitative interactions.

For the MTIM framework, evaluators referred to holistic talent identification, specifically pertaining to para-cricket when sport selection occurs. Evaluators of the pilot and para-cricket sport selection framework echoed the same sentiments affirming that reliability of the model was intact and Cronbach's Alpha was, and excluding the evaluators, the model had.

6.2. Refinement Of Items Based on Response Patterns

Three significant adjustments were made based on item analysis and provisional testing feedback:

1. Certain jargon was substituted for plain language to address different literacy levels of the users.
2. Questions were revised to be specific to the realities of para-cricket (e.g. use of assistive technologies and adaptive game plans).
3. A couple of questions were reworded to lessen social desirability bias and prompt respondents to answer more openly. For instance, "I am confident in my skills" was rephrased to "My coaches help me build confidence through regular feedback".

These changes improved the model's usability to ensure it is scientifically robust and practical for the athlete.

6.3. Final Multidimensional Talent Identification Model (Mtim)

The last model incorporates 6 major dimensions, which each have 2 representative indicators. The model now acts as a complete matrix for evaluating the potential of specially abled cricket players.

Table 4: Final Structure of the Multidimensional Talent Identification Model (MTIM).

Dimension	Focus Area	Example Indicators
Physical	Functional fitness and adaptive physical performance	1. Regular physical assessments 2. Ability to maintain endurance during play
Psychological	Motivation, confidence, resilience	1. Engagement in motivational activities 2. Coping ability under pressure
Technical	Skill execution and adaptive technique	1. Mastery of basic cricketing skills 2. Use of adaptive techniques specific to disability
Tactical	Decision-making and game awareness	1. Ability to plan strategies 2. Understanding match situations
Social/Environmental	Inclusivity and support systems	1. Accessibility of facilities 2. Peer and family support
Coaching/Training Support	Quality of training, mentorship, and feedback	1. Access to qualified coaches 2. Personalized feedback and training programs

7. COMPARATIVE ANALYSIS: YOUR MODEL VS EXISTING MODELS

An examination of talent identification frameworks in Gujarat and India alongside the proposed Multidimensional Talent Identification Model (MTIM) shows positive advancements in

Aspect	Existing Gujarat/India Models	Proposed Multidimensional Model (MTIM)
Focus	Physical and technical aspects dominate assessments; psychological, tactical, and social factors rarely considered.	Incorporates six integrated dimensions – physical, psychological, technical, tactical, social/environmental, and coaching/training.
Inclusivity	Largely restricted to able-bodied players; para-athletes are often assessed informally or excluded from mainstream frameworks.	Designed exclusively for specially abled cricket players, ensuring inclusivity across all disability categories.
Assessment Tool	Relies on subjective observation and unstandardised trials without validated metrics.	Uses a validated, structured 12-item questionnaire with measurable indicators for each dimension.
Application	Local or regional selection camps with limited reach and inconsistent evaluation criteria.	Nationwide applicability through standardised procedures, suitable for both grassroots and elite-level selection.
Standardisation	Low reliability due to lack of objective tools and inter-rater variation.	High reliability (Cronbach's $\alpha > 0.8$) ensuring consistency, objectivity, and reproducibility.

Like the other models of Gujarat and India, the ones run by cricket associations and sport authorities also focus more on the outcome of the activity, and pay less attention to the capacity of the activity or the individual (Fransen & Güllich, 2019). While cricketing averages, bowling speeds and cricket fielding metrics do give some indication of value in the sport, they do not account for some major factors like the mental, strategic, situational, and contextual factors of success especially in adaptive sports. Also, the models in use also do not have adequate scientific standardisation leading to wide variations on the metrics of identifying giftedness in various locations and across different ability/disability cohorts.

Within the framework of proposed MTIM, the focus of the model becomes more comprehensive and systematic with the appreciation of factors surrounding the activity that measures the individual's physical performance. Factors like mental fortitude, strategic focus, situational modifications in accessibility, and the standard of coaching which the sport also sees as equal. This multi-faceted use of factors makes para-cricket so special, where mental acuity and adaptability in the sport for performance makes for a core focus. This model works best in conditions where para-cricket is played.

The MTIM also utilizes evidence-based practice as one of its strengths. Every dimension of the MTIM is informed and supported by principles of sports science like the biopsychosocial model and is substantiated by pilot studies and factor analysis (English et al., 2018). Consequently, MTIM is empirically credible, integrating qualitative observation and quantitative reasoning.

balance, inclusivity, and scientific rigor.

While traditional models focus mainly on physical and technical aspects, the MTIM adopts a **comprehensive, evidence-based, and multidimensional perspective**, making it more suitable for assessing specially abled cricket players.

Furthermore, this model facilitates longitudinal tracking, which is a feature missing from other frameworks, allowing coaches and administrators to evaluate athlete development over extended periods.

The MTIM is able to push classified science inclusivity, standardization, and equity of talent identification to all areas, in contrast to existing models which are compartmentalized, fragmented, and location based. By providing opportunities to specially abled athletes, it exemplifies equity in selection and redefines para-sport development in India to be more aligned with international standards. Outcome-based assessment can be conducted, marking a departure from subjective assessment.

8. IMPLICATIONS AND RECOMMENDATIONS

Coaches, stakeholders, academics, and para-sport advocacy groups are some of the people who will be influenced by the development and validation of the Multidimensional Talent Identification Model (MTIM). MTIM champions scientific rigor in the evaluation of athletes while also expanding the dimensions of inclusiveness and neutrality, advocating the use of evidence-based practices at all levels of talent evaluation and development.

Coaches are at the center of the assessment and development continuum for athletes, and MTIM will be highly beneficial in moving coaches away from assessment practices relying on intuitive hypotheses and observation, towards more formal, structured and multidimensional empirical assessment. Coaches will be gaining the skills necessary for comprehensive evaluation of players in the various aspects of the game they may possess, and the

psychological and tactical dimensions, and will help move more players towards the attainment of their goals through the development of more individualized coaching plans.

MTIM will also motivate coaches to proactively include psychological activities and social inclusion strategies in core training activities, thus providing a more comprehensive developmental culture. A result of such integration will be psychologically balanced players with enhanced self-confidence, enabling them to adapt to changing competitive situations.

The MTIM drafted for SAI, BCCI, and state cricket boards is ready for integration and operationalization in accordance with domestic inclusion plans, and cross-border sport disability standards. MTIM can be integrated into the Khelo India and National Talent Search programs, permitting policy implementers to advocate that all tests conducted on specially abled athletes are designed and executed with the same rigor as for any other able-bodied sportsperson.

Gujarat state associations and other associations in their vicinity can mainstream the MTIM through certified selection camps. Evaluation conducted by assessors who have received evaluation training based on the model will provide consistency in player evaluation. Establishing and maintaining digital repositories for talent will allow SAI or BCCI to implement talent scouting and assessment as a data driven process, thus, continuously monitored digital analytics, will provide feedback that can be legislated and funded.

The MTIM model fosters empirical investigation in para-sport science. Validation of the model across sport disciplines, and development of AI assisted screening tools to automate the data collection and scoring process, are other research streams. Technological advancement in such areas will not only improve access and minimize personal bias in assessment during data collection, but also provide instant feedback to coaches and athletes, and will timely bias score the athlete assessment tools designed.

Future research should prioritize longitudinal validation studies to determine how the MTIM Predictive Model metrics correlate with performance indicators over a sustained period. Such an approach can further consolidate the predictive validity of the model. Adaptation of the MTIM model to other developing countries with comparable socio-sporting ecosystems could benefit from cross-cultural studies.

Grassroots talent development is mostly up to

NGOs and para-sport associations. MTIM can offer a training and evaluation structure for these associations to refine talent development for grassroots initiatives more strategically.

The MTIM incorporates and addresses the social and environmental factors concerning inclusive development while providing a model for NGOs to push for the availability of inclusive coaching, assistive sport tools, and inclusive sports settings. The results derived from the MTIM framework enable NGOs to campaign for access to more inclusive sports settings, facilities, and apparatus for athletes with disabilities. Joint initiatives among academics, trainers, and community organizations can streamline the creation of a self-sustaining ecosystem of inclusive sports.

In summary, MTIM combines precision with social integration, providing a scientifically grounded manifestation of how the identification, training, and support infrastructure for specially-abled athletes in India can be transformed across various social dimensions of inclusion.

9. CONCLUSION

This study referenced and validated the Multidimensional Talent Identification Model (MTIM) for specially abled cricket players. Initial and following steps in research documenting tool development, pilot testing, and subsequent validation helped the project build a sustainable and just framework for improving talent identification systems in Gujarat and the rest of the country.

The Model is MTIM is differentiated due to the six distinctive interconnected and interdependent components: Physical, Psychological, Technical, Tactical, Social/Environmental, and Coaching/Training. This marks a shift in appreciating the intricacies of a player's potential. MTIM moves beyond reductionist paradigms in which the assessment focus is almost exclusively on the physical and technical components of the sport. MTIM merges the mind, body, and environment in a cohesive paradigm. The standardized and validated assessment tools reached the preset high objectivity criterion of $\alpha > 0.8$ and the intuitive multi-dimensional scoring systems facilitated.

The system's advanced predictive analytics improves evaluative benchmarks for performance assessments to provide how specially abled players predictive performance assessed systemized and fairly evaluative. This serves to explain biases in selection, provide rationale for personalized coaching and mentoring plans, and foundational national standards to policy administrators, coaching

framework standards, and predictive analytics and AI as a research innovation frontier for sport science.

Based on the MTIM, science of para sport positively adopts and demonstrates a significant dynamic change, placing talent identification under the core constructs of inclusivity, standardization,

and scientific specificity. By adopting this model, for equitable sports ecosystem, India would incrementally advance positively and extensively so. MTIM strengthens cricket for the specially abled, deepening the vision of cross-sport policy, research and practice, inclusive excellence, and inclusivity.

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