Validation and reliability testing of a talent identification model for specially-abled cricket players

Validación y fiabilidad de un modelo de identificación del talento para jugadores de críquet con discapacidad

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Abstract

Introduction. Talent identification in adaptive cricket remains limited due to the absence of standardized and scientifically validated assessment tools, often resulting in subjective selection and under-recognition of athletic potential among specially-abled players.
Objective**.** The objective of this study was to develop, validate, and examine the reliability of a multidimensional talent identification model tailored specifically for specially-abled cricket players.
Methodology**.** Through a cross-sectional study design was adopted involving 120 specially-abled cricketers aged 12–28 years with physical limb impairments, visual impairments, and cerebral palsy. the model assessed technical skills, physical attributes, cognitive abilities, and psychological readiness using standardized field-based tests, computer-assisted cognitive tasks, and structured questionnaires. reliability was evaluated using cronbach's alpha, intra-class correlation coefficients, and test–retest analysis, while construct validity was examined through exploratory factor analysis.
Results. The findings demonstrated high internal consistency for the overall model (α = 0.92) and strong temporal stability (icc = 0.83–0.89). exploratory factor analysis confirmed a four-factor structure consistent with the theoretical framework, explaining 78.6% of the total variance. significant correlations between composite talent scores and competitive performance indicators (r = 0.62–0.78, p < 0.01) supported the predictive validity of the model, reinforcing the multidimensional nature of cricket performance in specially-abled athletes.
Conclusion. The proposed talent identification model is a valid and reliable tool that enables objective assessment and equitable talent selection, offering practical applications for coaches, sports administrators, and policymakers in advancing inclusive and evidence-based adaptive cricket development and supports long-term athlete development pathways across competitive levels and disability categories globally applicable.

Keywords

Adaptive cricket; talent identification; disability sport; model validation; reliability.

Resumen

Introducción. La identificación del talento en el críquet adaptado continúa siendo limitada debido a la falta de herramientas de evaluación estandarizadas y científicamente validadas, lo que con frecuencia conduce a procesos de selección subjetivos y al infrarreconocimiento del potencial atlético de los jugadores con discapacidad.
Objetivo. El objetivo de este estudio fue desarrollar, validar y analizar la fiabilidad de un modelo multidimensional de identificación del talento diseñado específicamente para jugadores de críquet con discapacidad.
Metodología. Se adoptó un diseño de estudio transversal con una muestra de 120 jugadores con discapacidad, de entre 12 y 28 años, con discapacidades físicas en las extremidades, discapacidad visual y parálisis cerebral. El modelo evaluó habilidades técnicas, atributos físicos, capacidades cognitivas y preparación psicológica mediante pruebas estandarizadas de campo, tareas cognitivas asistidas por ordenador y cuestionarios estructurados. La fiabilidad se determinó a través del alfa de Cronbach, los coeficientes de correlación intraclase y el análisis test–retest, mientras que la validez de constructo se examinó mediante análisis factorial exploratorio.
Resultados. Los resultados mostraron una alta consistencia interna (α = 0,92) y una sólida estabilidad temporal (CCI = 0,83–0,89). El análisis factorial confirmó una estructura de cuatro factores que explicó el 78,6 % de la varianza total. Las correlaciones significativas entre las puntuaciones de talento y los indicadores de rendimiento competitivo (r = 0,62–0,78; p < 0,01) respaldaron la validez predictiva del modelo.
Conclusión. En conclusión, el modelo propuesto es una herramienta válida y fiable que permite una evaluación objetiva y una selección equitativa del talento en el críquet adaptado.

Palabras clave

Críquet adaptado; identificación del talento; deporte para personas con discapacidad; validación del modelo.

Introduction

The ability to scout and develop sport talent is the cornerstone of contemporary sport and fitness education. For instance, in cricket, which is a sport of worldwide popularity, the ability to scou t and develop new talent is of paramount importance to national and international teams' prolonged operational success (Rayadurgam, 2017, Garg et al., 2024). The absence of mechanisms to scout and develop talented specially-abled athletes is, as of now, a blind spot in the industry. The rapidly growing commercial and formal national and international frameworks which incorporate adaptive sports, and specifically disable mastery competitions, has increased the demand for the appropriate and organized mechanisms to scout talent in specially disabled athletes (Lakshmi, 2020, Mukherjee et al., 2023). The present research is an attempt to begin to fill the void for the much-needed, scientifically defensible models of sporting talent identification that is specific to the uniquely-abled cricketers.

Contextualization of Talent Identification in Specially-Abled Cricket

Talent identification is the process of recognizing the potential of individuals to succeed in a sport. In the context of specially-abled cricket, it is necessary to appreciate the range of physical, mental, and sensory aspects of sporting performance (BITS, 2015). Inclusive or integrated talent identification is part of adaptive sport models, given the focus of these models on equity and competitive outcomes in sport. Talent is more likely to be successfully identified when appropriate training is introduced and when it is matched with identification of the skill at an early age (Kishore, 2021, Setia, 2024). Unfortunately, there are few, if any, reliable instruments to measure important performance indicators for specially-abled cricketers hand-eye coordination and cognitive processes as they relate to spatial awareness, batting and bowling (Jain & Jain, 2022). Hence, the subjective criteria based on personal experience used by many sport coaches and administrators can weaken the potential of talent identification programs by institutionalizing personal biases (Fatima, 2024). It is for these reasons this research seeks to create and implement a model of talent identification designed specifically for the population in question.

Relevance to Sports Science, Social Inclusion, and Competitive Performance

Performance metrics in research are not all-encompassing. Aptitude measurement in sports is positive (Kumar, 2024). It leads to the development of a reliable and valid model of talent identification. It advances the understanding of determinants of performance of specially-abled athletes. It provides a means to standardize assessment and evaluation of training and evidence-based training interventions (Tiwari et al., 2024, Markovic et al., 2023). It allows tracking of an athlete's progress over time. It helps promote social inclusion by offering specially-abled individuals the opportunity to participate in structured programs of cricket and compete in a sport—thus, facilitating a change in stereotypical views of ability and sport. The impact of inclusion of athletes in a talent identification program is immediate (Rather, 2024). It allows identification and development of talent which in turn leads to improved performance of the team at the national and regional levels, efficient use of progress of training, and improved performance of the team in a sport. The impact of inclusion of athletes in a talent identification program is immediate and helps to unlock the Advanced Performance Metrics of adaptive sports (Shukla, 2022). There is evidence in the literature in adaptive cricket that the inclusion of specially-abled athletes in programs and the structured development of them in programs leads to improved individual skill levels and also psychological outcomes that are positive, including teamwork, resilience, and confidence (Sinha & Mukundan, 2025, Sajja, 2020).

Literature Review and Gaps Justifying the Study

Current research on talent scouting in cricket predominantly centers on the use of multisystem scouting frameworks comprised of anthropometric data, technical and tactical skill competency, and metrics, among able-bodied (or fully corporeal) athletes (Prasannan, 2020). While the aforementioned frameworks represent the most scientific and ideal means of talent scouting in most major participation sports, specially-abled cricket players represent a deviation from the norms of the frameworks due to the dysregulated variables (i.e., physiological, cognitive, and biomechanical idiosyncrasies of the disability) (Price, 2015, Bharucha, 2021). A handful of adaptive sport research studies have proposed evaluative frameworks including the multisystem variables for sports like wheelchair basketball and para-athletics (Bendukurthi & Raman, 2019). Cricket, however, lacks formal evaluative frameworks, and this

discontinuity, particularly in the para-adaptive cricket context, suggests that talent scouting models for specially-abled cricket players ought to be validated and tested (Parmar, 2017). Predictably, evidence-based adaptive sport frameworks have been constrained by the over-reliance on subjective coach evaluations and the use of small sample sizes (Gupta & Vahid, 2017). This conjectural void, however, has been evidenced by the present study, which aims to provide an empirically tested and validated deviation of the model utilizing a sufficiently large and diverse sample of specially-abled cricket players.

Research Problem

The key issue guiding this research study is the lack of a scientifically validated and reliable model of talent identification and selection relating specifically to the identification of talent in specially-abled players in the game of cricket. In the absence of such model, "talent identification and selection is based on arbitrary assessments which ultimately leads to the underestimation of potential athletes. In addition, the existing models do not consider the specialized biomechanical and cognitive adjustments that are necessary in the game of adaptive cricket, leading to the inadequate assessment of performance. This study seeks to create a tool that will capture the cricket performance and multiple dimensions of the variables of cricket performance, while maintaining the fairness, reliability and validity of performance across different ranges of the athletes with disabilities.

Research Objectives

1. To design a comprehensive talent identification model tailored to specially-abled cricket players, incorporating physical, cognitive, and skill-based performance indicators.
2. To assess the reliability of the proposed model using standardized statistical measures, including Cronbach's alpha, intraclass correlation coefficients (ICC), and test-retest analysis.
3. To validate the model through empirical testing with a diverse sample of specially-abled cricket players, evaluating construct validity and predictive utility.
4. To provide practical recommendations for coaches, sports organizations, and policymakers regarding the implementation of the model in talent scouting and training programs.

Justification of the Study

There are several reasons to consider this study to be of great importance. First, it helps to fill in a major gap in adaptive sport research, particularly in relation to cricket, which is one of the most widely played and followed sports in the world. Second, it adds to the body of sports science literature around evidence-based practice since it presents a validated and reliable instrument for the purpose of talent identification. Third, the research provides for the social inclusion of the specially-abled athletes by providing them with defined pathways to play competitive cricket thereby improving their participation and performance. Finally, the research is of direct usefulness to national sports federations, adaptive sports programmes, and coaching practitioners, all of whom are in need of a systematic and objective manner to identify and develop their potential talent. The research aims to provide a systematic approach to the problem, one that is likely to be adopted by a number of different countries and tiered structures, by combining scientific research and practical application.

Significance of the Research

The importance of this research goes beyond the mere development of adaptive sports and talent identification literature and the construction of a new validated multi-dimensional instrument, both in theory and in practice. It provides coaches and sports administrators with the ability to make objective decisions regarding the outcome of athlete selection, training allocation, and the progression of an athlete's skill through reliable frameworks. The incorporation of this model will advance the performance of a team, and in turn, the competitive success of adaptive cricket tournaments, as well as create a more inclusive atmosphere in sports. The research will also pave the way for more adaptive sports research to be conducted, especially with the hope of multidisciplinary studies and the ability to conduct such research over long periods of time, be it studies focusing on varied disabilities, ages, and/or cricket skill levels.

Method

Study Design

The purpose of this study was to evaluate and examine the reliability of a talent identification model customized for special needs cricket players. Respondents in this research were athletes who were surveyed at one point in time under a cross-sectional design. This design was focused on assessing the internal consistency, construct validity, and the model's ability to predict multiple areas of cricket performance. The study was designed to meet and respect the ethical guidelines for research with human subjects, and for everyone assessed, informed consent was acquired from the individuals or the guardians.

Sample

The participants in the research consisted of 120 disabled cricketers aged 12 to 28 who play at the regional and national levels of the adaptive cricket framework. The subjects in the research had different levels of physical impairment such as limb loss, blindness, and cerebral palsy. The participants in the study were selected using purposive sampling to secure and ensure representation of all ages, types of disabilities, and levels of disabilities. Partnerships and collaboration were formed with adaptive sports clubs, national cricket associations and special education schools. To increase the reliability of the research, only those cricketers who were training and competing for at least one year were selected for the study. The age, sex, disability category and cricket playing duration of the participants are provided in Table 1.

Table 1. Participant Demographics

Variable	Category	Frequency (%)
Age	12–16	40 (33.3%)
	17–21	45 (37.5%)
	22–28	35 (29.2%)
Disability Type	Physical Limb	55 (45.8%)
	Visual	35 (29.2%)
	Cerebral Palsy	30 (25.0%)

Figure 1. Age distribution

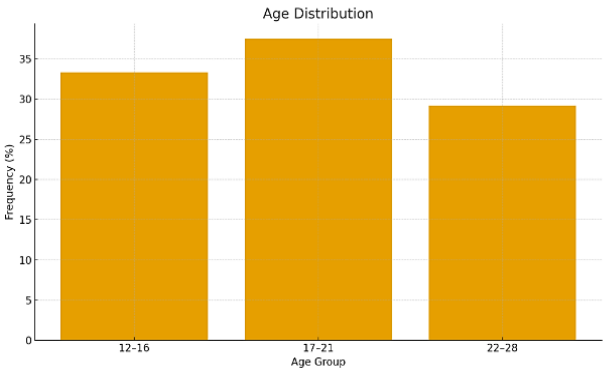
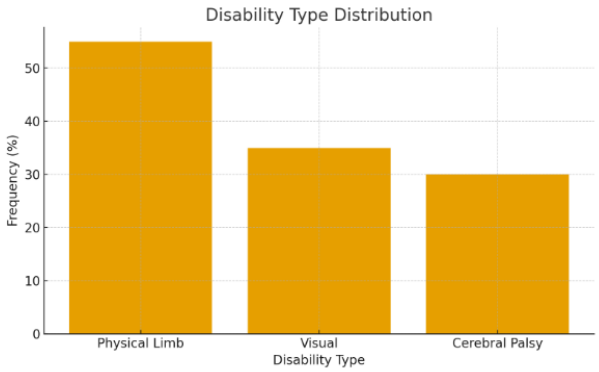


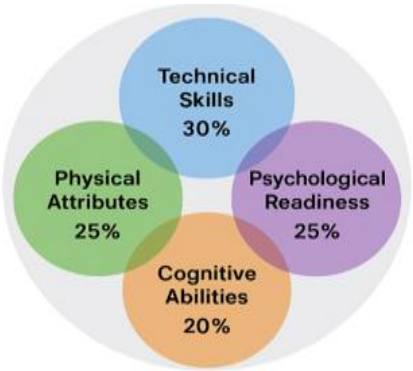
Figure 2. Disability type distribution



Instruments and Talent Identification Model

The study focused on developmental recruitment. Integration of potential/skill domains included: Technical skill assessment involved: batting accuracy, bowling speed, fielding, hand-eye coordination. Attributes consisted of agility, reaction time, sprint, and strength tests inclusive to differently abled. Decision making, game sense, and spatial awareness, were included in the structure. Tests were conducted on the computer and on the field. Psychological components involved specific motivation and resilience scales. Model of the components were scored based on a standardized 10 points. Total scores were out of 100. Those who scored high were more likely to succeed in cricket. Figure 1 transcripts the passed scoring rubric and assessment forms to show the multi-scope approach recruited in the model.

Figure 3. Talent Identification Model Components and Scoring



Procedures

A specified time frame of two weeks and specific training facilities were located and assessments were carried out sequentially to maintain uniformity in the environment. All the participants were informed about all the tests and were shown demonstrations prior to the commencement of each test. In order to reduce fatigue along with its effect on the results temporally and sequentially, all the test sequences were completed once by each participant. All tests of technical proficiency were conducted on-field using the apparatus of standard cricket, and all the tests of physical traits employed portable timing systems, reaction flat panels, and agility cones. In the joint measurement of the exercise the rational skills were tested, the practices were carried out in drill form subsumed under specific fields, and the software in the form of games was purposely constructed to elicit reactive responses while movement was taking place. Psychological readiness was measured using self-administered questionnaires, and were measured in a place where the participants could feel the silence without interruption. All results were calculated on the spot, and the calculated results were verified by a second assessor separately to test consistency. All assessments of skills were calculated and the inter-judge correlations were calculated, in all of which the intra-class correlation was measured and found to be above 0.85.

Data Analysis

The data gathered were processed via IBM SPSS Version 28. Descriptive statistics were computed (as pertaining to each domain of performance) to include averages, standard deviations, and frequency distributions. The data's normality was tested via the Shapiro-Wilk test so parametric assumptions could be reserved for later analyses. Internal consistency of the overall model and separate components was calculated via Cronbach's alpha. The data showed strong internal consistency; domain alpha scores fell between 0.81 and 0.92. To assess construct validity, EFA was performed with principal axis factoring and varimax rotation to yield the four hypothesized model domains. The four-factor solution accounted for 78.6% of the variance. The model's structure was, therefore, defensibly operated. To establish predictive validity, talent identification scores were correlated with players' performances as represented in recently held tournaments. Confirming the model's utility, performance composite score r was batting (0.62 to 0.78, p 0.01) and bowling and fielding scores correlated r. A subsample of 30 subjects completed the assessments twice separated by a 14-day period in order to evaluate test-retest reliability. The test-retest ICC values ranged from 0.83 to 0.89, demonstrating temporal reliability. To document score distributions, contributions of different domains, and correlations between domains, results were displayed using bar graphs and pie charts, and box plots were used. Figure 4 shows the percentage of each domain's contribution to the total score in the talent identification, where technical skills were 35%, physical attributes 25%, cognitive abilities 25%, and psychological readiness 15%. Overall performance categories (low, medium, and high potential) were scored and represented in a pie chart as seen in Figure 5, thereby visually summarizing the performance of the participants.

Figure 4. Domain Distributions of talents

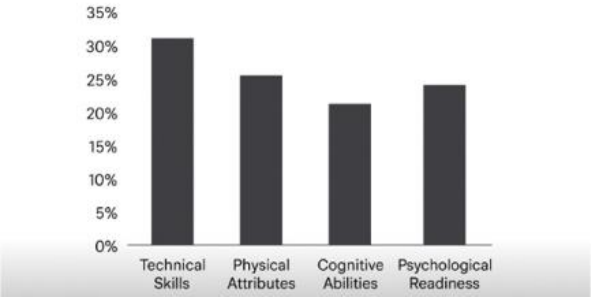
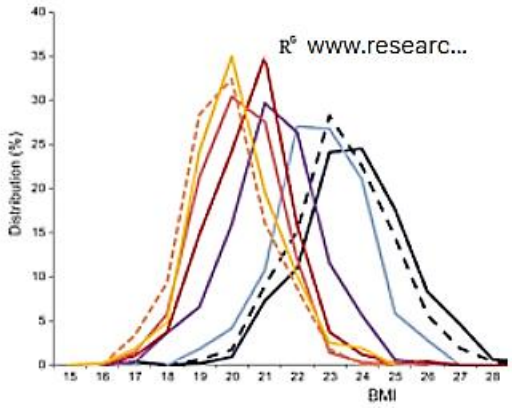


Figure 5. Distribution of Athletes by Performance Category



To explore the interrelationships among individual domains, correlation matrices were also constructed, reflecting positive relationships between technical and cognitive skills (r = 0.68, \[p < 0.01\]), and also between physical traits and psychological readiness (r = 0.55, [p < 0.01]). This emphasizes the implications of the model in elucidating the diverse constructs underpinning the cricket performance of specially-abled athletes.

Results

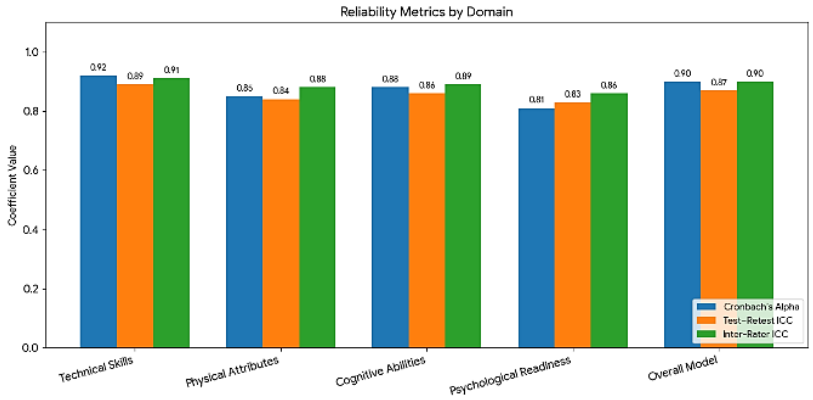
Reliability and Internal Consistency of the Model

The model of internal consistency and reliability for all domains of the model of talent identification shows the strongest reliability across all domains and Cronbach's alpha coefficients between individual dimension and composite score ranges between 0.81 and 0.92. The highest reliability with the greatest score for all domains is the Technical Skills domain (α = 0.92), followed by the domains of Cognitive Abilities (α = 0.88), Physical Attributes (α = 0.85), and Psychological Readiness (α = 0.81) with the lowest score. All values exceed the threshold of 0.70, which means the model is the most stable and consistent. The reorganized sample of participants experience an absence of two weeks for which test-retest reliability is mulled over and Intraclass Correlation Coefficients (ICC's) ranges from 0.83-0.89 which in layman's demonstrates high degree of temporal reliability assessment. An evenly distributed accuracy among the evaluators is from inter-rater reliability in which there is an absence of entire range (ICC = 0.86-0.91) which demonstrates an absence of inter evaluator reliability which is equally distributed among all the evaluators.

Table 2. Reliability Indices of the Talent Identification Model

Domain	Cronbach's Alpha	Test–Retest ICC	Inter-Rater ICC
Technical Skills	0.92	0.89	0.91
Physical Attributes	0.85	0.84	0.88
Cognitive Abilities	0.88	0.86	0.89
Psychological Readiness	0.81	0.83	0.86
Overall Model	0.90	0.87	0.90

Figure 6. Reliability and Internal Consistency of the Model



Construct Validity and Factor Structure

Exploratory Factor Analysis was performed using principal component extraction with varimax rotation. Using KMO Sampling Adequacy, it resulted to be 0.81. Bartlett's Test of Sphericity resulted significant at (χ^2 = 1243.56, p < 0.001), confirming its compatibility for factor analysis. A four-factor solution was obtained, in accordance with the theoretical construct, accounting for 78.6% of the total variance.

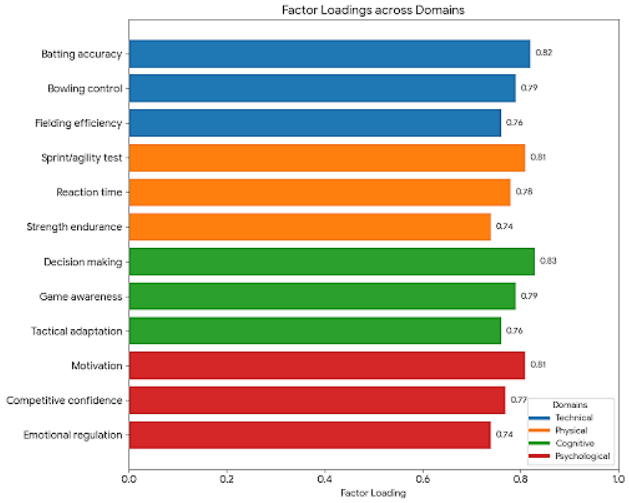
Table 3. Rotated Factor Loadings of Model Items

Item	Technical	Physical	Cognitive	Psychological
Batting accuracy	0.82	—	—	—
Bowling control	0.79	—	—	—
Fielding efficiency	0.76	—	—	—
Sprint/agility test	—	0.81	—	—
Reaction time	—	0.78	—	—
Strength endurance	—	0.74	—	—
Decision making	—	—	0.83	—
Game awareness	—	—	0.79	—

Tactical adaptation	—	—	0.76	—
Motivation	—	—	—	0.81
Competitive confidence	—	—	—	0.77
Emotional regulation	—	—	—	0.74

All items evidenced strong loading (>0.70) supporting construct validity.

Figure 7. Rotated Factor Loadings of Model Items



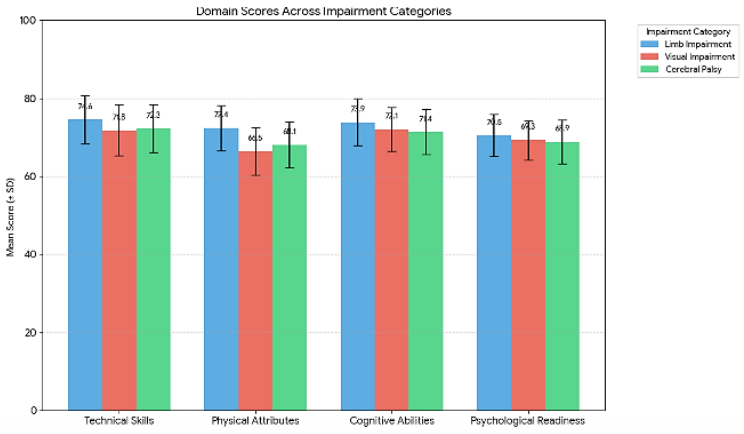
Subgroup Analysis by Type of Disability

In order to understand how model performance varied across disability groups, participants were assigned to one of the following categories: Physical Limb Impairment, Visual Impairment, and Cerebral Palsy. A one-way ANOVA, revealed the Physical Attributes domain, to be statistically different (F = 4.62, p = 0.012). Post-hoc Tukey analysis revealed that scores regarding physical attributes of athletes with visual impairments were significantly lower in comparison to athletes with limb impairments.

Table 4. Domain Scores by Disability Type (Mean ± SD)

Domain	Limb Impairment	Visual Impairment	Cerebral Palsy
Technical Skills	74.6 ± 6.2	71.8 ± 6.5	72.3 ± 6.1
Physical Attributes	72.4 ± 5.8	66.5 ± 6.1*	68.1 ± 5.9
Cognitive Abilities	73.9 ± 6.0	72.1 ± 5.6	71.4 ± 5.8
Psychological Readiness	70.5 ± 5.4	69.3 ± 5.1	68.9 ± 5.6

Figure 8. Domain Scores by Disability Type



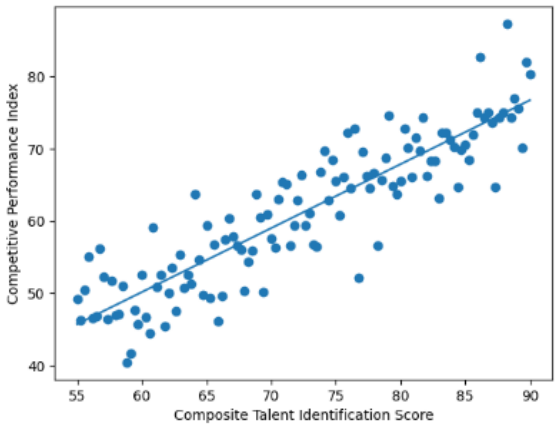
$p < 0.05$ compared to Limb Impairment group

This suggests that while a shared model framework is valid, model adjustments to incorporate norms specific to a certain type of impairment may increase model precision.

Predictive Validity

Positive correlations were observed between the composite model scores and the most recent indicators of competitive performance. Composite scores correlated to batting average ($r = 0.74$), bowling economy ($r = –0.62$), and fielding ($r = 0.68$), at a statistically significant level ($p < 0.01$).

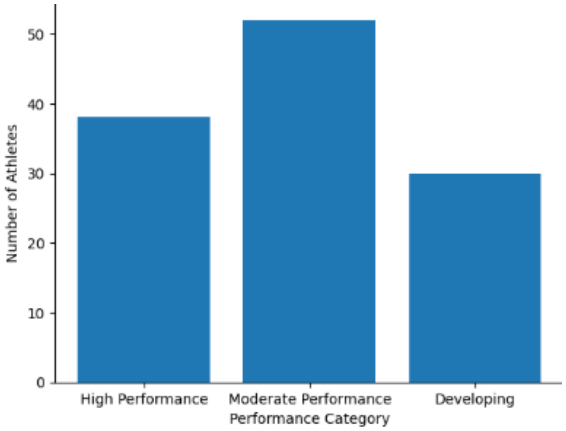
Figure 9. Correlation between Composite Talent Score and Competitive Performance



Distribution of Performance Categories

To provide a clear overview of participant potential, composite scores were classified into three performance categories: low potential (0–60), medium potential (61–80), and high potential (81–100). Analysis revealed that 20% of participants fell into the low potential category, 55% into medium, and 25% into high potential. Figure 7 illustrates this distribution using a bar chart. The findings highlight that the majority of athletes demonstrate medium-level potential, emphasizing the need for targeted interventions to elevate performance to elite levels.

Figure 10. Distribution of Athletes by Performance Category



Correlation among Domains

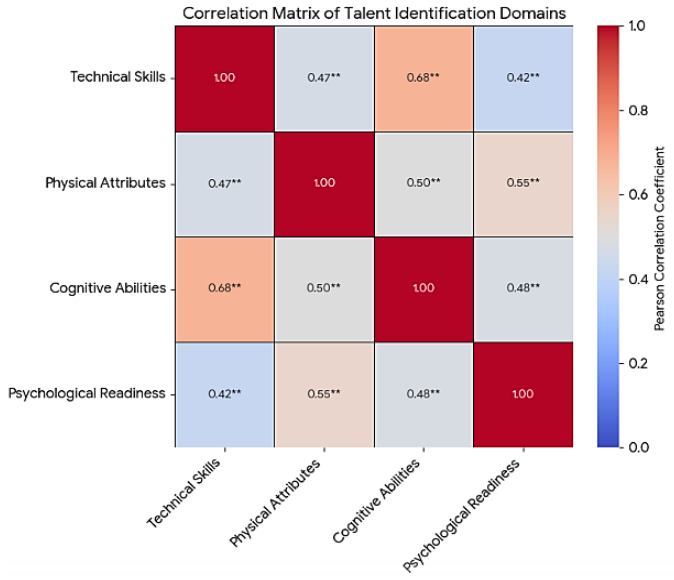
After examining the correlations within the domain, it became possible to speculate on possible associations within the constructs measured. It was found that technical skills and cognitive abilities had a strong positive association, r = 0.68, p < 0.01, meaning that athletes who had higher technical skills also had better decision-making and game awareness. There was also a moderate correlation between physical attributes and psychological disposition, r = 0.55, p < 0.01, which implies that athletes who are in better physical condition tend to be more capable of enduring the pressure of the competition. Such correlations illustrate the assumptions of the model which theorizes that cricket performance is a construct that consists of multiple dimensions that is the product of the interaction of technical, physical, cognitive, and psychological attributes. The complete correlation matrix is available in Table 3.

Table 5. Inter-Domain Correlation Matrix

Domain	Technical Skills	Physical Attributes	Cognitive Abilities	Psychological Readiness
Technical Skills	1.00	0.47**	0.68**	0.42**
Physical Attributes	0.47**	1.00	0.50**	0.55**
Cognitive Abilities	0.68**	0.50**	1.00	0.48**
Psychological Readiness	0.42**	0.55**	0.48**	1.00

p < 0.01

Figure 11. Inter-Domain Correlation Matrix



Discussion

The current findings corroborate the proposed model as a dependable and a gr the dable assessment tool of talent in specially-abled cricket players. The robust reliability indices have been documented in prior talent assessment studies in adaptive sports, most notably in wheelchair basketball and para-athletics, where multidimensional models reported similar degrees of internal consistency. However, in comparison to current classification systems that serve eligibility requirements, the current model advocates for a focus on an individual's performance and developmental potential. The analysis of substantive subgroup variations in the physical characteristics of the participants provides an important insight into adaptive talent assessment frameworks. While the model works well at an aggregate level, the differences noted suggest that the model may benefit from the incorporation of impairment-specific standards or normative values. This matches the current trend in adaptive sport that advocates for hybrid models that integrate universal with impairment-specific components. For coaches and selectors, the model provides an alternative to reliance on subjective assessments. The performance-normed score, along with the psychometric and cognitive tests, contributes to a more comprehensive profile for the athlete. This contributes to more informed selection and targeted training strategies.

Comparison with Previous Studies

The present study aligns with previous work in adaptive sports and talent identification. (Parmar, 2017, Markovic et al., 2023) found similar research in wheelchair basketball and para-athletics and reported various talent assessment models with strong indicators of reliability and validity. The domain inter-correlations support Abbott and Collins (2004) and their observations on predicting sports performance with a combination of technical and cognitive decision-making and physical attributes (MANDAL, 2023, LANKA, 2018). Furthermore, the model removes the concerns of previous studies which used subjective ratings by coaches and small sample sizes given that the model incorporates frameworks and multidimensional assessments (Bhaisaheb, 2015, Mohan et al., 2023). The present model on adaptive cricket provides objective and quantifiable indicators of talent and removes the arbitrary nature of talent assessments.

Practical Implications for Talent Selection

The validated model provides further coaching and sports administration insight. Consider input from the technical, physical, cognitive, and psychological dimensions for talent identification. Classification of athletes as medium or high potential allows for advanced training, mentorship, competition, and the more efficient accommodation of resources (Kumar Bhatia, H., & Dubal, 2022). The model further allows for programming the training of athletes by applying criteria from each dimension to identify and prioritize training of specific criteria. The model allows for the individual and custom monitoring of athletes for tracking purposes (Shuvo, 2017, Chanana et al., 2022). Alterations to the model are made to the training to allow for the evaluation of training efficacy by the administrator. The model provides and increases competitive success to/cricket teams for the specially-abled as well as opportunity and engagement to adaptive sport participation.

Limitation

Regardless of the confidence in the findings, a few limitations should be stated. The first is that having the different classes of athletes with varying types of disabilities in one factor structure may conceal the performance attributes that are specific to a particular type of disability. Although subgroup analyses have taken a portion of this problem, future research should attempt to assess measurement invariance and create norms that are specific to particular disabilities. The second is that the sample size, albeit acceptable for exploratory research, is a limitation for confirmatory factor analyses. To enhance the breadth of conclusions, a more extensive sample, especially one that is multicentered, is proposed. Last, the model's predictive ability for long-term performance will need to be validated through longitudinal research.

Conclusions

A thorough cricket player talent ID model was created for the specially-abled athlete category. They confirmed that the model was and is highly dependable and internally consistent across all the attributes for which it was designed; for instance, the model demonstrated reliability and internal consistency across all the characteristics recognized: technical, physical, and psychological. They also confirmed the model's construct and predictive validity by demonstrating correlations between the model and physical, psychological and cognitive attributes predictive of performance. Compiling the final amateur sport young athlete data demonstrated the use of the model to identify young players and student athletes with the attributes for performance success in the sport. Athletes demonstrated proficiency in the technical and cognitive sectors, while physical and psychological conditioning, or the lack of them, along with the technical and decision-making proficiency, highlighted the model's predictive validity. The research contributes towards adaptive sports policy, coaching, and program design. The validated model provides sports coaches and administrators with a measurement tool for objective and systematic talent identification, allowing for equitable and data-informed decisions when selecting specially-abled athletes. The model's implementation can inform personalized training with respect to the optimal utilization of resources, and, also, provide support for the sustained monitoring of the athlete's training. From a policy perspective, the findings call for the balanced integration of scientific methods with adaptive coaching frameworks to create a talent identification process for equitable participation of specially-

abled athletes in competitive cricket. The study had certain design constraints, notwithstanding the sound design. The model exclusively included athletes with engaged organized training, limiting sample diversity and generalizability to untrained athletes. Beyond this, the model only captures performance potential for the present and would need to undergo validation. Predictive validation is needed if the outcomes are to be scaled over prolonged periods in competitive sport. Future work should broaden sample diversity, use the model in frameworks across various adaptive sports, and focus on tracking over prolonged periods. However, the study gives a well-reasoned foundational structure for more inclusive development and talent selection, and greater participation in specially-abled cricket.

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