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The Influence Of Technological Changes Upon Players' Performance: Mediating Role Of Selection Standards

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ABSTRACT

This study examines the impact of technological advancements upon players' performance, with a focus on mediating role of selection standards. The research was conducted over a survey of students enrolled in selected HEIs, Pakistan. The present study employs quantitative research design, utilizing structured questionnaires to collect data from the sample of students with a keen interest in cricket. The participants were asked to provide their [1]perceptions and experiences regarding the influence of technological changes on players' performance, along with mediating role of selection standards. In this regard, variables were carefully selected from the existing literature from different perspectives, converted them into theoretical framework and extracted the hypotheses based upon relationships among research variables of different nature. The results indicate that selection standards play crucial mediating role in determining the extent to which these factors affect performance outcomes. The implications of findings are discussed in terms of their relevance for cricket coaching, talent identification & player development. The study contributes to existing literature by providing empirical evidence on interplay amid technological factors in shaping players' performance.

Keywords: *Technological Changes, Players Performance, Selection Standards, Influence & Higher Education.*

INTRODUCTION

The globalization around the world has changed the processes and procedures in diverse sectors including sports wherein numerous changes are witnessed about technological advancement that has changed the traditional manners towards innovativeness from different dimensions [1]. The diverse changes have been evident in different sports thereby introducing the modern technology by ensuring the innovative techniques that enabled players and officials to take suitable decisions [2]. The technological advancement is incorporated in diverse spheres of sports that significantly influence on sports especially on cricket [3]. The due credit is given to international cricket council for fusing modern technologies as introducing in cricket [4]. These

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technologies boost the interest of fans and bring more attraction towards cricket from different dimensions and perspectives [5]. These developments make the game easier that facilitates the cricket officials in making suitable decisions related with timely provision of diverse developmental prospects in different contexts as per requirements [6]. The players are facilitated from these advancements and decisions that further improved their skills and potentials culminates at respectable performances in order to sustain the successes. Thus, players are required to show their readiness to adopt the changes as per situational demands.

The cricket has gained momentum during last decades due to technological developments that attracted the huge populations towards cricket due to the changed pattern [7], from traditional ways towards innovative advancements that attracted the attentions of fans towards the cricket from different dimensions [8]. The cricket fans have appreciated the changes that are introduced by international cricket council that further overwhelmed the situations toward developments in different technological innovation [9]. The performance of cricketers is dependent on numerous factors that makes situations more favorable to show their utmost commitment and performance to attain the desired development and success [6]. These advancements are not only important for developments of cricket but also important for players from different dimensions that helps in providing the opportunities for the further developments [7]. These decisions are thus important for players in inspiring their behaviors toward cricket in improving their commitment, motivation and performance [10]. The performance is influenced significantly by the selection standards that in diverse situations has diverse consequences towards behaviors and responsiveness of players to realize the outcomes. Therefore, these are leading approaches that provide opportunism for the developments in performance.

The selections standards are important for the officials in maintaining the players apprehensions towards the criteria and approaches that are used for selecting the teams in particular situations for attaining the particular outcomes [11]. The technological changes are vital in diverse situations for the cricketers to sustain the environment towards desirability and dedication toward different tasks and leading goals [12]. The cricketers are always inspired by the officials to use innovative and advanced techniques to sustain their leading approachability and motivational techniques to sustain the environment toward desired outcomes [13]. The technological changes are significant in sustaining the credibility of players towards desired performances and outcomes to overwhelm the situations in realizing significant prediction that are aligned with procedural and formational redesigning toward the anticipated as well as leading consequences [14]. The formational changes with respect to the introduction of colored uniforms and day-night matches further attracted the audience to enjoy cricket from the new perspectives that helps in sustaining the environmental changes towards desired credibility and success [1]. In this regard, by aligning selection standards with formational changes, selectors can collect a well-balanced team capable of executing diverse game plans effectively.

Objective & Hypothesis

1. To examine the association between technological changes, selection standards & players' performance in particular context (H_1).
2. To examine mediating role of selection standards in linking the technological changes & players' performance in particular context (H_2).

LITERATURE REVIEW

The cricket is unique and interesting game played at different levels through effective teamwork and innovative thinking in order to gain desired outcomes [2]. The individuals and team-spirit are significant predictors to nurturing players behaviors to realize the anticipated leading outcomes [15]. The technological changes have surely elevated the bar for performance in cricket, allowing teams and players to leverage advanced training methods, data-driven insights, and cutting-edge equipment to excel in this highly competitive sport [5]. The strategic reshuffle can maximize the bowling effectiveness, exploit opponent weaknesses, optimize batting partnership and ultimately prompting the outcome of the game [7]. The tactical innovations like introduction of new bowling strategies, batting techniques give players a competitive edge and increase required effectiveness [9]. The selectors may establish selection standards that stress tactical intelligence, versatility, and ability to execute diverse roles within the team structure [16]. Therefore, selectors may place greater emphasis on attributes like coachability, resilience & ability to when evaluating prospects [7]. The cricketers' performance is the outcome of various efforts and potentials that are required for realizing different tasks that needs additional competencies and skills to sustain the situation as per required standards.

Technological Changes

The technological advancements offer teams with vast amounts of information related to player performance, match conditions and opposition analysis, still, effectiveness in information relies on players' ability to apply and interpret it effectively [17]. The effective standards selection can arrange players who possess strong logical skills and ability to explain data into actionable plans [11]. The players who are adept at implementing and understanding data-driven tactics impact significantly their performance and contribute to their team success. The cricketing landscape is evolving constantly with the new technological innovations being introduced regularly [18]. The technological changes in cricket brings along certain significant variations in cricket format that are helpful in eliminating the wrong decisions and facilitates officials and umpires from different parameters to take suitable decisions in order to maintain reliability and accuracy in cricket [19]. The technological spread ensured review of decisions taken by umpires in revisiting the situations for maintaining the effective and efficient atmosphere wherein these decisions are recognized [20]. The technological changes are significant for the advanced technologies in order to ensure desirability and approachability to sustain the environmental and contextual changes toward desired consequences.

Selection Standards

The selection standards help selectors amass teams with strategic versatility, balancing skill sets and fostering synergy and cohesion among players. This cohesion empowers teams to implement seamlessly formational changes, execute procedural adjustments and capitalize on technological innovations cohesively [21]. The selection of players who align with playing style, team's strategic vision, selectors create interconnected unit capable of adapting to various match scenarios and abusing faintness rivals' effectively [22]. The selection values incentivize players to continuously innovate and improve, driving performance developments across formational, technological, and procedural domains [23]. The players who aspire to exceed/meet selection criteria are inspired to refine their skills, hold new technologies, and adapt to evolving game dynamics that direly needed for success [16]. Thus, by integrating

selection standards into broader performance frameworks management, cricket organizations exploit the impact of strategic initiatives and technological innovations on the team success and player development [24]. The active standards for selection prioritize players who determine proficiency in using technological tools to enhance performance [11]. By selecting tech-savvy player who comprehend how to leverage technology successfully can enhance the performances.

Players' Performance

The best performances are always required from the players to realize their leading tasks that are expected from them in diverse situations for attaining the diverse outcomes that are aligned with the procedural and formational changes overwhelmed at desirability and commitments towards success [2]. These procedures inspire the players to show their decent performances to attain the anticipated outcomes that are contingent on many factors where certain allied leading approaches are linked for particular purpose [10]. The players are inspired further from different aspects that are critically associated with various parameters towards the credibility in different dimensions necessary for nurturing performance over adoptability of players in different circumstances [16], that have significant influence on cricketers' commitment and performance. The performance of cricketers undoubtedly plays crucial role in their total success as consistent and high-quality performance indicates a cricketer's skill level as improvement in skills such as batting, fielding, bowling, strategy directly contributes to a player's success [25]. The cricket is a team sport, and individual performance contributes to team success [26]. Therefore, a cricketer who consistently performs well significantly impact their team motivation & performance, leading toward victories and championships.

RESEARCH METHODOLOGY

The present study research design is quantitative in nature as it is focused upon the application of various statistical tools and procedures to examine empirical relationship amid research various as managed through research hypotheses. The current study uses survey approach for contacting sample from population to examine the views and reach the conclusion. The population of present study comprises those students who are studying in department of sports sciences and physical education hailing from southern region HEIs in KP, Pakistan. There is total 1640 students in the selected institutions. The sample of 322 students was selected over sampling formula as suggested by researchers and 314 were recollected that were used for analysis. The secondary and primary sources are leading aspects of research that aimed to collect desired data either from the existing knowledge through available literature and either from the questionnaire to collect the responses from respondents about research issues under study. The primary data was analyzed through statistical procedures with sufficient interpretation to extract information about desired relations among research variables that was further used for required decision-making in specific context. The instrumentation is the main element in research that is used for collecting primary data from respondents of study. The existing studies offers different scales that are used in different contexts on similar issues

RESULTS OF STUDY

The results of study are presented in this section that are mainly the outcomes of the statistical procedures that are used to examine relationships among the research variables of study in

order to extract the desired information and making the required decisions about relationships among research variables.

Table 1 Descriptive Statistics

	N	Minimum	Maximum	Mean	SD
Technological Changes	314	1.30	4.80	3.2519	.73675
Selection Standards	314	1.60	4.60	3.4523	.67432
Players' Performance	314	1.63	4.70	3.3723	.61590
Valid N (listwise)	314				

The descriptive statistics provides the important information about describing the variable with respect to sample-size, minimum and maximum response rates, mean and standard deviation, and results revealed that all the variables have sufficient values in describing the research issues regarding the required threshold values in determining the research variables to obtain desired leading information.

Table 2 Reliability Statistics

Variables	Items	Cronbach's Alpha
Technological Changes	10	0.772
Selection Standards	10	0.749
Players' Performance	10	0.752
Overall Value	30	0.898

The results of reliability statistics through Cronbach Alpha values revealed that all the variables have sufficient values in describing the internal consistency among the research issues under the considerations wherein technological changes (0.772), selection standards (0.749), and players' performance (0.752), and overall value of the instrument (0.898) wherein all the values are as per required threshold.

H1: There are significant association amid predictor (technological changes), mediator (selection standards) and criterion (players' performance) (correlation).

Table 3 Correlation Analysis (H1)

		[1]	[2]
Technological Changes [1]	Pearson Correlation	1	.462**
	Sig. (2-tailed)		.000
	N	314	314
Selection Standards [2]	Pearson Correlation	.462**	1
	Sig. (2-tailed)	.000	
	N	314	314
Players' Performance [3]	Pearson Correlation	.643**	.526**
	Sig. (2-tailed)	.000	.000
	N	314	314
**. Correlation is significant at the 0.01 level (2-tailed).			

The results of correlation revealed important information about the association among research variables that was hypothesized through first hypothesis with the aim to examine association in predictor, mediator and criterion variables. The results revealed important information about the association and reaching decisions wherein technological changes has significant association with players' performance (R = 0.643 & P = .000), and selection standards with the players' performance (R = 0.526 & P = .000). Thus, results provide significant information about association and thus hypothesis is accepted.

H2: The mediator (selection standards) significantly mediated the relationships between the technological changes and cricketers' performance (mediation) (H3).

Mediation First Step (a)

Table 4 Model Summary (H2)

R	R Square	MSE	F	df1	df2	p
.4619	.2134	.3588	65.5566	1.0000	312.0000	.0000

Table 5 Coefficients of Regression

Model	Coefficient	se	t	p	LLCI	ULCI
Constant	2.0774	.1649	12.6006	.0000	1.7530	2.4018
Technological Changes	.4228	.0522	8.0967	.0000	.3200	.5255

Predictor: Technological Changes
Criterion: Selection Standards

Mediation Second & Third Steps (b & ć)

Table 6 Model Summary

R	R Square	MSE	F	df1	df2	p
.6928	.4799	.1985	147.6332	2.0000	311.0000	.0000

Table 7 Coefficients of Regression

Model	Coefficient	se	t	p	LLCI	ULCI
Constant	1.0728	.1456	7.3669	.0000	.7862	1.3593
Selection Standards	.2654	.0479	5.5358	.0000	.1711	.3598
Technological Changes	.4253	.0394	10.7847	.0000	.3477	.5029

Predictor: Technological Changes, Selection Standards
Criterion: Players' Performance

Mediation Fourth Step (c)

Table 8 Model Summary

R	R Square	MSE	F	df1	df2	p
.6430	.4135	.2232	243.1322	1.0000	312.0000	.0000

Table 9 Coefficients of Regression

Model	Coefficient	se	t	p	LLCI	ULCI
Constant	1.6242	.1170	13.8801	.0000	1.3939	1.8544
Technological Changes	.5376	.0345	15.5927	.0000	.4697	.6054

Predictor: Technological Changes
Criterion: Players' Performance

The mediating role of the selection standards in linking the technological changes and cricketers' performance has been hypothesized through third hypothesis. The mediation results provide the details through four paths of mediation procedure wherein the first path revealed that 21.34% variance occurred in selection standards through technological changes with significant impact (β = 0.4228 & P-value = .000). The second and third paths revealed that there in 47.99% change occurred in cricketers' performance through technological changes and selection standards with its significant impact on cricketers' performance likewise technological changes (β = 0.4253 & P-value = .000) and selection standards (β = 0.2654 & P-value = .000) through relationships of indirect nature that further provides the clues towards fourth path to examine the relationship of direct nature.

The fourth path of mediation procedure provides the details about the direct relationships for prediction of cricketers' performance through technological changes. The results revealed that there are 41.35% changes occurred in cricketers' performance through technological changes with its significant impact towards direct prediction (β = 0.5376 & P-value = .000). The results from these mediation analyses confirmed that selection standards partially mediated the relationship between technological changes and cricketers' performance due to decease in coefficient value from (0.5376) in direct relationship to (0.4253) in indirect relationship that confirmed the role of selection standard through partial mediation and hypothesis from these results is hence accepted and substantiated. Therefore, the study provides important information in reaching the decision about mediation.

DISCUSSION

The globalization around the world has changed the processes and procedures in diverse sectors including sports wherein numerous changes are witnessed about technological advancement that has changed the traditional manners toward innovativeness from diverse dimensions [1]. These progresses are mainly concerned with usage of speedometer, hotspot, bowling machine Hawkeye, stump microphone, sportswear technology and sink-meter that play significant role in making suitable decisions [7]. The players' performance is influenced significantly by selection standards that in diverse situations has diverse consequences towards the behaviors and responsiveness of players to realize outcomes [5]. The video analysis software, wearable sensors, simulation tools allowed players to identify weaknesses, refine their skills, and maneuver more effectively [27]. The technological changes facilitate officials and players to

take suitable decisions about the different tasks that are central for sustaining environment, situations toward desirability and commitment to realize important outcomes [28]. The technological and procedural changes are important in diverse situations for cricketers to sustain environment towards desirability and dedication to the different tasks and leading goals [29], by aligning selection standards with formational changes, required for successes.

The literature revealed that technological changes have influenced players performance in diverse manners that influence them to perform with dedication commitment towards desired outcomes [30]. This could include players who vigorously use the video analysis, data analytics, and other technological resources to identify areas for improvement, examine their own game, make data-driven decisions [31]. The performance analysis tools and advanced tracking systems provide players and coaches with invaluable insights into various aspects of the game, including the player biomechanics, movement, and tactical patterns [32]. The technologies help in player progress and strategic planning as technological changes modernized cricket, making game engaging, accurate, and manageable to both fans and players [33]. The coaches and players play a crucial role in driving technological changes in cricket as they seek technologies and tools that can help to improve skills, analyze performance, and gain viable edge through opponents [34]. The team performance is collective result of individual contributions from players across bowling, batting, and fielding disciplines [35]. Also, evolving state-of-the-art cricketing services, including training academies, stadiums and practice grounds, is for promoting the sport, that provides the development chances to concerned players.

CONCLUSION

The present study aimed to examine effects of technological changes on cricketers' performance, with focus on mediating role of selection standards, offers valuable insights into factors inducing cricket efforts and potentials over decent performance. The research indicates that technological advancements have a significant impact on cricketers' performance as modern technologies like biomechanical analysis tools, high-speed cameras, performance tracking systems allow players to improve refine techniques, skills, and optimize performance outcomes. The changes in formation strategies, including team formations, batting orders, fielding placements, and bowling tactics, are found to affect players' performance. The strategic adaptations to opponent strengths, match conditions & situation donate to better performance outcomes. The results of study revealed the important information about the association among the research variables that were found the significant and positive while significant partial mediation role of selection standards in linking the technological changes and players' performance thereby contributing the existing database of knowledge (literature).

Recommendation

1. The cricket coaches, authorities, and training facilities should prioritize the integration of modern technologies, such as biomechanical analysis tools, high-speed cameras, and performance tracking systems, into training programs which can boost the performance of the players.
2. Regular evaluation and monitoring of technological interventions are essential to ensure their effectiveness in enhancing cricketers' performance as administrators and

coaches can establish protocols for analyzing performance, and making adjustments to training programs as needed.

3. The cricket teams should adopt formation plans that are tailored to match conditions, the opponent strengths, and game situations as coaches should analyze the strengths and weaknesses of their team and opponents to develop strategic formations that maximize performance outcomes.
4. Selection standards should be rigorously enforced to ensure that only most talented and skilled players are selected for competitive teams. Coaches should establish clear criteria for player selection and adhere to standards consistently to maintain the integrity and effectiveness of players.

REFERENCES

[1] Tissera, K., Orth, D., Huynh, M., & Benson, C. The impact of augmented feedback (technology) on learning and teaching cricket skill: A systematic review with meta-analysis. PLoS ONE, 17(12): e0279121. (2022).

[2] Mani, E. A strong sport growing stronger: a perspective on the growth, development and future of international cricket. Sport Sociology, 12(4–5):681–93. (2009).

[3] Khadse, S. M. Technological Advancement and Their Impact on Cricket. Aayushi International Interdisciplinary Research Journal. VII (I), 43-44. (2020).

[4] International Cricket Council. ICC Development Available from: https://www.icccricket .com/about/development. [2020].

[5] Ramesh, K. A. The role of information technology in enhancing sports performance. International Journal of Physical Education, Sports and Health, 3(5), 277-279. (2016).

[6] Singh, M., Mehta, D., & Sarkar, D. Advancement of Information & Communication Technology (ICT) in Cricket. International Research Journal of Humanities & Interdisciplinary Studies, 3 (4), 110-120. (2022).

[7] Narvariya1, D., & Akshay, L. Technology's Effect on Players Performance: The Science of Cricket. JETIR 11 (3), 589-594. (2024).

[8] Tissera, K., Orth, D., Huynh, M., & Benson, A. C. The impact of augmented feedback (and technology) on learning and teaching cricket skill: A systematic review with meta-analysis. PLOS ONE, 17(12), e0279121. (2022).

[9] Morton, S., Barton, J., Rice, S., & Morrissey, D. Risk factors and successful interventions for cricket-related low back pain: Systematic review. British Journal of Sports Medication, 48(8):685–91. (2014).

[10] Windt, J., MacDonald, K., Taylor, D., Zumbo, B. D., Sporer, B. C., & Martin, D. T. "To tech or not to tech?" a critical decision-making framework for implementing technology in sport. Journal of Athletic Training, 55(9), 902–910. (2020).

[11] Johansson, A., & Fahlén, J. Simply the best, better than all the rest? Validity issues in selections in elite sport. International Journal of Sports Science & Coaching, 12, 470–480. (2017).

[12] Hameed, K., Kadhim, H., Salman, K., & Saif, N. The Impact of Technology Interaction with Multiple Sports Fields and Players in Raising Efficiency and Increasing Abilities and Skills. International Journal of Computer Science and Mobile Computing, 7 (12), 304-312. (2018).

[13] Thelwell, R. C., Maynard, I. W. The effects of the mental skills package on 'repeatable good performance' in cricketers. Psychol Sport Exerc. 4(4):377–96. (2003)

[14] Guru, G., & Raja, G. Influence of Technology on Top Sports Performance: A study. International Journal of Research and Analytical Reviews, 7 (1), 1-9. (2020).

[15] Diehl, K., Thiel, A., Zipfel, S., Mayer, J., Litaker, D. G., and Schneider, S. How healthy is the behavior of young athletes? A systematic literature review and meta-analyses. J. Sports Sci. Med. 11, 201–220. (2012).

[16] Johnston, K. D., and Baker, J. Waste reduction strategies: factors affecting talent wastage and the efficacy of talent selection in sport. Front. Psychol. Mov. Sci. Sport Psychol. 10:2925. (2019).
[17] Dellaser, C. L., Gao, Y., & Ransdell, L. Use of integrated technology in team sports: a review of opportunities, challenges, and future directions for athletes. The Journal of Strength & Conditioning Research, 28(2), 556-573. (2014).
[18] Thelwell RC, Maynard IW. The effects of a mental skills package on 'repeatable good performance' in cricketers. Psychol Sport Exerc. 4(4):377–96. (2003)
[19] Harwood, M., Yeadon, M., & King, A. A shorter cricket pitch improves decision-making by junior batters. Journal of Sports Sciences, 37(17):1934–41. (2019).
[20] Glebova, E., & Desbordes, M. Identifying the Role of Digital Technologies in Sport Spectators Customer Experiences through Qualitative Approach, Athens Journal of Sports, 8 (2), 141-160, (2021).
[21] Riot, C. J., Hahn, A., & James, D. A. A structured approach for technology innovation in sport. Sports Technology, 6(3), 137–149. (2013).
[22] Johnston K, Baker J. Waste reduction strategies: factors affecting talent wastage and the efficacy of talent selection in sport. Front Psychol. 10: 2925. (2020)
[23] Dellaser, C. L., Gao, Y., & Ransdell, L. Use of integrated technology in team sports: a review of opportunities, challenges, and future directions for athletes. The Journal of Strength & Conditioning Research, 28(2), 556-573. (2014).
[24] Socha, R, & Wiśniewski, B. Safety of mass sports events. ASEJ Scientific Journal of Bielsko Biala School of Finance and Law. 23. 42-44. (2019).
[25] Haake, S. J. The impact of technology on sporting performance in Olympic sports. Journal of Sports Sciences, 27(13), 1421–1431. (2009).
[26] Johns, D., and Johns, J. Surveillance, subjectivism and technologies of power: an analysis of the discursive practice of high-performance sport. International Review for the Sociology of Sport, 35(2), 219–234. (2000).
[27] Milne, N., Leineweber, M., Blackburn, J., & Braun, W. Ethical implications of athletes' perceptions of technology use in elite sport. Journal of the Philosophy of Sport, 47(1), 109-126. (2020).
[28] Singh Bal, B., and Dureja, G. Hawk Eye: a logical innovative technology use in sports for effective decision making. Sport Science Review, 11(1–2). (2012).
[29] Bell, D. R., Rönnqvist, K. C., & Hoshizaki, T. B. The application of virtual reality technology in concussion evaluation and management: a narrative review. Journal of Concussion, 2, 1-10. (2018).
[30] Cummins, C., Orr, R., O'Connor, H., & West, C. Global positioning systems (GPS) and microtechnology sensors in team sports: A systematic review. Sports Medicine, 43(10), 1025-1042. (2013).
[31] Düking, P., Holmberg, H. C., & Sperlich, B. Instant biofeedback provided by wearable sensor technology can help to optimize exercise and prevent injury and overuse. Frontiers in physiology, 9, 1672. (2018).
[32] Milne, N., Leineweber, M., Blackburn, D., & Braun, C. The Past, Present, and Future of Performance Analysis in Sports. In Performance Analysis in Team Sports (pp. 1-16). Routledge. (2020).
[33] Lin, W.-B., Chen, M.-J., Tung, I.-W., & Chen, M.-Y. An analysis of an optimal selection process for characteristics and technical performance of baseball pitchers. Perceptual and Motor Skills, 113(1), 300–310 (2011).
[34] Thelwell RC, Maynard IW. The effects of a mental skills package on 'repeatable good performance' in cricketers. Psychol Sport Exerc. 4(4):377–96. (2003)

[35] Barnes, C., Archer, D., Hogg, B., Bush, M., and Bradley, P. The evolution of physical and technical performance parameters in the English Premier League. Int. J. Sports Med. 35, 1095–1100. (2014).