Pak. j. life soc. Sci. (2024), 22(2): 5146-5163 E-ISSN: 2221-7630;P-ISSN: 1727-4915

Pakistan Journal of Life and Social Sciences
www.pjlss.edu.pk

https://doi.org/10.57239/PJLSS-2024-22.2.00384

RESEARCH ARTICLE

Exploring Sports Analytics of Coaches: An Optimization for Team Performance and Strategy Development

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ARTICLE INFO

Received: Jul 17, 2024

Accepted: Sep 10, 2024

Keywords

Coaches, Analytics

On field

Off field

Team Performance

Strategy Development

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ABSTRACT

Coaches use analytics to greatly improve athlete performance by providing strategic guidance, individualized training plans, and ongoing feedback to help athletes attain their maximum potential and master skills. Hence, this study examines the attainment of the PSU coaches on sports analytics both on-field and off-field, the problems and coping strategies to address these. The qualitative-coding design through semi-structured interview have gathered data into the challenges and their coping strategies. The data reveal a notable attainment in on-field analytics but a comparatively moderate in off-field. Moreover, the problems in on-field include limited funding, competing demands between extracurricular activities and academics, and lack of sports infrastructure. Conversely, their off-field problems cover inadequate assistance, communication, and low participation. Self-funding, follow-up mechanisms for effective communication, and training are their coping strategies. There is an indication to suggest collaborations, implementation of a structured development program, efficient channels of communication and offer incentives and guarantee success in coaching.

INTRODUCTION

Effectively integrating varied data sources is an issue that exists in the investigation of sports analytics in coaching for team performance and strategy formulation. This contains biological data, performance indicators, and player monitoring data—all of which might not always line up perfectly. The creation of tailored coaching plans that take into consideration each player's particular learning preferences, learning styles, and areas of strength and weakness is another area that needs focus. Numerous facets of business and society are being impacted by the growth of data analytics. Education institutions are trying to assist in meeting the ongoing increase in demand for talent in this field. Both the playing side (on-the-field) and the commercial side (off-the-field) of sports show a growing use of data analytics (Foster, 2021) . Additionally, Real-time decision support systems are also required in order to optimize in-game plans by giving coaches prompt insights and recommendations during games. Another major hole that has to be filled is the ethical considerations surrounding data protection, permission, and potential biases in algorithmic decision-making. Closing these gaps could improve team performance and strategy formulation by enabling coaches to use sports analytics more effectively.

The significance of sports and sporting ethics has been qualified since ancient times, particularly those advocated through human values that help to the development of a cohesive personality. In this setting, developing rules and establishing a regulatory framework to safeguard and promote sport's principles and objectives became important. Aside from that, sports and physical education are both important human rights. Sport has evolved into a global phenomenon in which people participate in various aspects of it by watching video sporting events or actively participating in the administration or management of these events, and as the number of professional athletes and coaches grows exponentially, a plethora of relationships that necessitate legislation emerges. Sports law investigates the notions of sport, sports activities, and sporting life, as well as the issues that occur within the sports scene and the legal practices that apply to them (Rodriguez, et al, 2023). The Philippine Sports Commission was created and established under Republic Act No. 6847, which defined its powers, functions, and responsibilities. The Philippine Sports Commission adopted the policy of promoting physical education, sustaining the development of sports in the country to foster physical fitness, self-discipline, teamwork, and excellence for the development of a healthy and alert citizenry through a unified national sports promotion and development.

Likewise, the Department of Education shall implement Republic Act No. 5708, denoting an act providing for the promotion and financing of an Integrated Physical Education and Sports Development Program for Philippine Schools, which was founded on an integrated physical education and sports development program in all Philippine schools, by the following guiding principles. The purpose of physical education is to instill in young persons a proper understanding of the value of physical and mental development in individual and social activities. All of these things can be accomplished through a coach's innovative qualities and the coaching process creative process. Aquino, et al (2022) noted that organizations that want to capitalize on knowledge-based personnel will need to change their management style to one that is consultative and participatory. Coaching is a common term for this approach. Managers must shift from a typical function of managing and monitoring employee performance to a more consultative role when coaching. Coaching is a method of forming a relationship between management and an employee, resulting in a common understanding of what needs to be accomplished and how it should be accomplished.

By giving timely feedback, recognition, clarity, and support, coaching promotes a motivating climate for performance, improves the match between an employee's actual and expected performance, and raises the possibility of an employee's success. Coaching is a term used in the performance management cycle to describe providing continuous feedback and support to an employee throughout the year. Coaching allows employees to hear about parts of their performance in "real-time," as well as participate in determining how to effectively adapt or adjust their behavior for success (Johnson, 2020; Helaudho et al., 2024)

Simply said, coaching is a practice that focuses on the 'now and now' rather than the distant past or future to improve performance. While there are many different coaching approaches, we are focusing on the coach as a facilitator of learning rather than the coach as an expert. There is a significant distinction between teaching and assisting someone in learning. Fundamentally, the coach's role is to assist the individual in improving their performance: in other words, to assist them in learning. Good coaches believe that each person has the answer to their difficulties but recognize that they may require assistance in finding it. Coaching is based on the premise that each person has the answers to their difficulties. The coach is not a subject expert; instead, he or she is concerned with assisting the individual in realizing their full potential. The emphasis is on the individual and what is going on within their heads. A coach does not have to be a specific person; anyone, whether peers, subordinates, or superiors, can use a coaching technique with others (Ranjith, et al , 2024; Rashad et al., 2024).

Coaches have an important role in sports, performing instructional, organizational, strategic, and social connection functions, and their interactions with athletes have an impact on both skill development and psychosocial consequences (Kassim, 2020; Thajeel et al., 2024). Athletes are helped to reach their greatest potential by sports coaches. They are in charge of coaching athletes in a sport by analyzing their performances, teaching relevant skills, and encouraging them. However, you are also in charge of the athlete's life and sport-related guidance. As a result, the coach will play a wide range of roles, including instructor, assessor, friend, mentor, facilitator, chauffeur, demonstrator, adviser, supporter, fact seeker, motivator, counselor, organizer, planner, and the Fountain of All Knowledge. In sports, the coach's job is to provide the ideal environment for learning to take place and to develop ways to motivate the athletes. Most athletes are highly motivated, so the challenge is to keep them motivated while also generating excitement and enthusiasm (gano-overway, 2019)

In a similar line, sports analytics is a field that analyzes different aspects of the sports industry using data analysis techniques, such as player performance, business performance, recruitment, and so on. The information gleaned from these assessments is then used to make well-informed decisions that improve a team's or organization's performance. Sports clubs are utilizing competent sports data analysts to establish a competitive advantage both on and off the field now more than ever. In the off-season, data analytics plays a big role in recruiting. Not only to evaluate possible new players to decide whether or not they should be added to the roster but also as a significant selling point to entice them to join the team. That includes putting together presentations on how to use analytics to improve the recruit's game. Technical skills should be developed while working in sports analytics. A short-term program is a terrific approach to getting those abilities up and running quickly. Starting a blog, especially for persons interested in sports statistics, is a terrific way to network and get their name out there. The sports sector is fiercely competitive, but it is also thrilling. To succeed in the sector, you'll need advanced technical skills as well as solid networking skills (Obi, 2024).

Sports analytics is a compilation of useful historical statistics that can give a team or person a competitive advantage. Sports analytics inform players, coaches, and other staff by collecting and analyzing data to help them make better decisions during and before athletic events. Following the publication of the 2011 film Moneyball, in which Oakland Athletics General Manager Billy Beane (played by Brad Pitt) relies largely on the use of statistics to assemble a competitive club on a limited budget, the term "sports analytics" became famous in mainstream sports culture. On-field and off-field analytics are the two main areas of sports analytics. On-field analytics is concerned with increasing the performance of teams and players on the field. It delves into details like game strategies and player fitness. Off-field analytics is concerned with the financial aspects of sports. Off-field analytics is concerned with assisting a sports organization or body in gaining insights and trends from data to increase ticket and merchandise sales, better fan engagement, and so on. Off-field analytics is using data to assist rightsholders in making decisions that will lead to enhanced growth and profitability.

Sports analytics is becoming more popular as a subject of study, thanks in part to the real-world success exemplified by the best-selling book and film picture. On the field, court, and ice, as well as in fantasy sports players' living rooms, the analysis of team and player performance data has continued to change the sports industry. It is aimed at sports management, coaches, physical therapists, and sports fans interested in learning more about the science behind player performance and game prediction (Davis, et al, 2022)

Sports analytics has been practiced for decades, but recent breakthroughs in data collecting and management technology have substantially increased its scope. In most major sports, the utilization of data and statistics has become commonplace. Professional statisticians are currently used by a high percentage of professional teams to support their operations. Sports analytics is essentially the application of mathematical and statistical ideas to sports and associated activities. Sports analysts

apply the same basic methodologies and strategy as any other type of data analyst, even though there are many aspects and priorities unique to the business. The foundation of the analytics process is establishing measuring parameters, such as hit or fumble rate, and consistently collecting data from a large sample. The data is then selected and optimized to increase the results' accuracy and usability. Teams have always relied on data, observations, and intuition to make key decisions regarding drafting and recruiting players, as well as evaluating their performance. While statistics have always been significant in evaluating player performance, high-powered analytical techniques may now be utilized to acquire a clearer and more thorough picture of player performance so that better judgments can be made about talent usage (Jaiswal, 2023).

In 2020, the worldwide sports analytics market was estimated to be worth USD 885.0 million. From 2021 to 2028, it is predicted to increase at a compound annual growth rate (CAGR) of 21.3 percent. Teams' coaching staffs have understood the value of on-field data in evaluating team performance, refining training curricula, tracking individual players, and monitoring injuries on an individual level during the previous few years. Squad management, on the other hand, has understood that on-field and off-field data may be integrated to streamline the team selection process, determine player lineups, and formulate in-game strategy. The demand for sports analytics solutions is predicted to rise as team administrators and coaches increasingly desire to use real-time data to design game strategies and organize training sessions.

The utilization of analytical data has given the sports betting and fantasy gaming sectors a new dimension. This data can be used to display information about players and teams in fantasy gaming apps. The information can also be used by someone who is playing a fantasy game and wants to pick his players and earn money. Over the forecast period, the market is expected to rise due to the increasing use of analytical data in fantasy gaming (Hintz, 2022)

The use of sports analytics was highlighted in the 2011 film "Moneyball," according to Cortsen, et al (2018). They were able to use certain criteria to acquire undervalued players and make decisions about how best to exploit the talent they already had. Sports analytics goes beyond standard statistics to include reliable analysis to help teams improve a variety of elements. The commercial side of sports has a lot of possibilities for practical data analysis. Because most professional sports teams are companies, they are constantly looking for methods to increase revenue and save costs across the board. Some sports analysts concentrate on issues relating to sports ticket marketing and sales as well as team goods. Modern marketing and fan outreach operations rely heavily on statistics to forecast their target audience and uncover opportunities to boost brand interaction (Bennett, 2023)

A career in sports analytics can be pursued with a variety of degrees. A degree in statistics and data analysis will provide you with the skills you'll need to work in sports analytics. Within their sports management department, some colleges offer a specialty in sports data analytics. This helps the student to improve their statistics and analytics skills while also learning more about the topic of sports management. Students with a bachelor's degree in sports analytics may want to consider getting a master's degree in the field. These programs cover data science and predictive analytics about sports management and performance in depth (Exel, et al, 2024). A statistician and other analytical professionals fall under the umbrella of a sports analyst on a professional level. While some professionals specialize in sports or add sports-related courses to their academic programs, many have a degree in statistics or a comparable quantitative subject. Professionals in analytics can use their expertise in a variety of areas, including sports team management. Professional and college sports programs are two of the most common employers of sports analytics practitioners. Statistics are an important element of any sports program, and sports analytics assist teams in making sense of the data and applying it to practical solutions to improve performance on and off the field. Athlete performance, game strategies, and recruitment techniques can all be influenced by player statistics.

Off the field, sports analytics can be used to evaluate data on fan engagement, ticket sales, and concession sales to improve the efficiency of the business (Amber, 2024)

Wearable technology businesses are becoming increasingly important in the world of sports, and they require sports analysts to help them develop their products. Wearable devices capture a massive amount of data from athletes, and sports analytics plays a role in analyzing that data as well as specialized data collection for certain outcomes. Sports analytics is also crucial in the development of training technology for athletes, such as simulators and virtual reality gadgets. The accuracy of these simulations is substantially improved by data analysis, which allows players and coaches to test techniques in a variety of game conditions to prepare for a variety of on-field scenarios. Human performance labs may also employ sports analysts. Specific athlete training data is used in these labs to fine-tune performance and boost training efficiency. Sports analytics can help athletes improve their competitive edge by establishing data-driven training plans (datasciconnect,2023).

Sports analytics is a rapidly expanding discipline of data science, with new and intriguing applications emerging daily. There are several ways to use statistics to achieve a competitive or economic advantage with hundreds of professional and college teams across multiple leagues. Sports data analytics plays a critical part in designing focused training programs and modifying athletic performance for so many players wanting to pinpoint performance and competitive advantage. Sports analytics is becoming increasingly important to practically every area of player, team, and organization administration because of its myriad practical uses both on and off the field (Rumo, 2024)

Advanced sensor systems and automated data analysis tools are being applied in the field of athletics through sensor-enhanced wearables and automated analytics for injury prevention in sports. Through the analysis of complex patterns in an athlete's performance parameters, these wearables with added sensors enable a data-driven approach to lower the risk of heat- and soft-tissue injuries. This technology creates a more secure and effective training environment by providing coaches and athletes with actionable insights (Kovoor, et al, 2024). Sarlis, et al (2020) conducted a benchmark existing performance analytics used in the literature for evaluating teams and players. This provides valuable information for team and player performance basketball analytics to be used for better understanding of the game. Hence, critical analysis of these metrics are valuable tools for domain experts and decision makers to understand the strengths and weaknesses in the game, to better evaluate opponent teams, to see how to optimize performance indicators, to use them for team and player forecasting and finally to make better choices for team composition.

Further, Additionally, the study used the Methodi Ordinatio to review the literature on Video Assistant Referees (VAR) in football. The influence of opening VAR operating rooms on the travel time of professionals officiating matches was examined in this study using the p-medians method. The sites of VAR operating rooms were found and using these locations for the first ten rounds of the Brazilian Serie A in 2021 may result in a reduction of around 70% in the overall distance traveled by the VAR officials (de Oliveira, et al, 2023). Also, Automatic event recognition from photos or wearable sensors, according to studylib.net (n.d.), is a critical first step in the creation of sophisticated sport analytics and broadcasting software. However, technical challenges, the expense of acquiring and annotating data, and economic interests impede the collection and annotation of large-scale sport datasets. From simulated soccer matches, the software produces fine-grained, autonomously generated event ground truth in addition to comprehensive spatiotemporal data. A comprehensive event detection system, fully created and tested on a synthetic dataset comprising 500 minutes of game play and over a million events, is also included in the SoccER software suite.

Furthermore, Richwin (2023) provided a summary of the most recent advancements in skin-interfaced wearable sensor technologies, emphasizing the use of flexible and soft materials in athletic

applications. A review of the prospects, unanswered questions, and potential paths ahead for the sports science and analytics area was provided.

The study of Olsofka (2018) revealed that when most sports fans think about analytics, they think of how they can be used to improve team performance: to pick the best players, field the best teams, and make the best judgments on the field or court. Eustis's (2018) article mentioned that the predictive possibilities of analytics in sports are what make it valuable. The most successful sports teams are those that harness the power of real-time data. Many teams are attempting to incorporate analytics into decision-making processes in a way that allows them to win games. They do so with varying degrees of success. Real-time data is a world unto itself; some teams and players can integrate real-time data, while others cannot.

Sarlis, et al (2017) stressed that the use of data linked to sports, such as player statistics, weather conditions, information from expert scouts, and so on, to develop predictive models around it to make informed judgments is referred to as analytics. For the decision-making process, data management tools, analytical models, and information systems are all incorporated. Such data is generally sought to improve team performance. The other branch of sports analytics is concerned with gaining knowledge of and retaining a large team's fan base, as well as attracting investors. There is a growth in the number of knowledgeable fans who rely on portals and platforms to keep track of their favorite teams' performances. Such analytical platforms are used by sports agencies to engage investors and increase fan participation. Moreover, Osaka's (2018) article entitled, "Why is Data Analytics So Important in Sports?" magnified that because of technological breakthroughs, the amount of data available on today's globe appears to be inconceivable. Sports teams can take advantage of the data that is readily available. Sports analysis is used in the sports sector to boost revenue, improve player performance, and team quality of play, prevent injury, and many other things.

Theoretical Framework

The **Systems Theory** is deemed very relevant as its foundation since sports teams are intricate systems made up of interrelated parts, and modifications to one element (such performance or strategy) can have an impact on the entire system. Applying systems thinking, coaches using sports analytics may comprehend how data-driven choices affect strategy formulation and team performance as a whole. This theory offers a basis for comprehending the intricacies involved in incorporating sports analytics into coaching methodologies, enhancing team efficacy, and formulating successful tactics to triumph in competitive sports settings.

METHODS

This study employed mixed- method because it used both descriptive and coding design. According to Ishtiaq (2019), the phrase "mixed methods" can have several interpretations (Sparkes, 2015). The study on "*Best Practices for Mixed Methods Research in the Health Sciences*" (Creswell et al., 2011) as cited by Bustos (2024) sparked interest in using this method. The study "*The Specificity of Observational Studies in Physical Activity and Sports Sciences: Moving Forward in Mixed Methods Research and Proposals for Achieving Quantitative and Qualitative Symmetry*" by Anguera et al. (2017) also employed this method. Additionally, Sparkes (2015) made the same method clear in "*Developing Mixed Methods Research in Sport and Exercise Psychology: Critical Reflections on Five Points of Controversy*". This study focused on the analysis of the attainment of coaches' analytics along on-field and off-field and linked these to their problems and coping strategies. The results were then supported by the literature. From this, suggestions were developed to enhance coaches' analytics performance. Due to financial and scheduling limitations, the current study's design is restricted to using only one approach. Eighty-three (83) coaches of the University were asked to participate in the study.

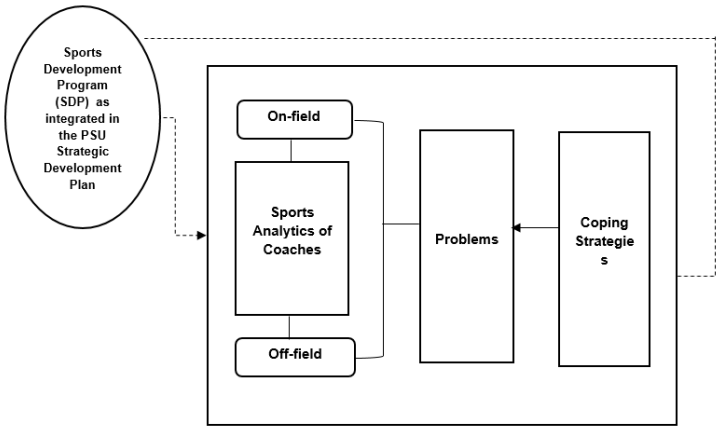


Figure 1. Conceptual framework of the study

RESULTS AND DISCUSSION

Level of Attainment of the PSU Coaches on Sports Analytics

The level of attainment of the Pangasinan State University coaches in the realm of sports analytics is reflective of a progressive and forward-thinking approach to coaching methodologies. The increasing importance of data-driven insights in improving player performance, fine-tuning tactics, and streamlining training schedules has been acknowledged by PSU coaches. The two dimensions of on-field and off-field are linked.

On-Field Sports Analytics of PSU Coaches

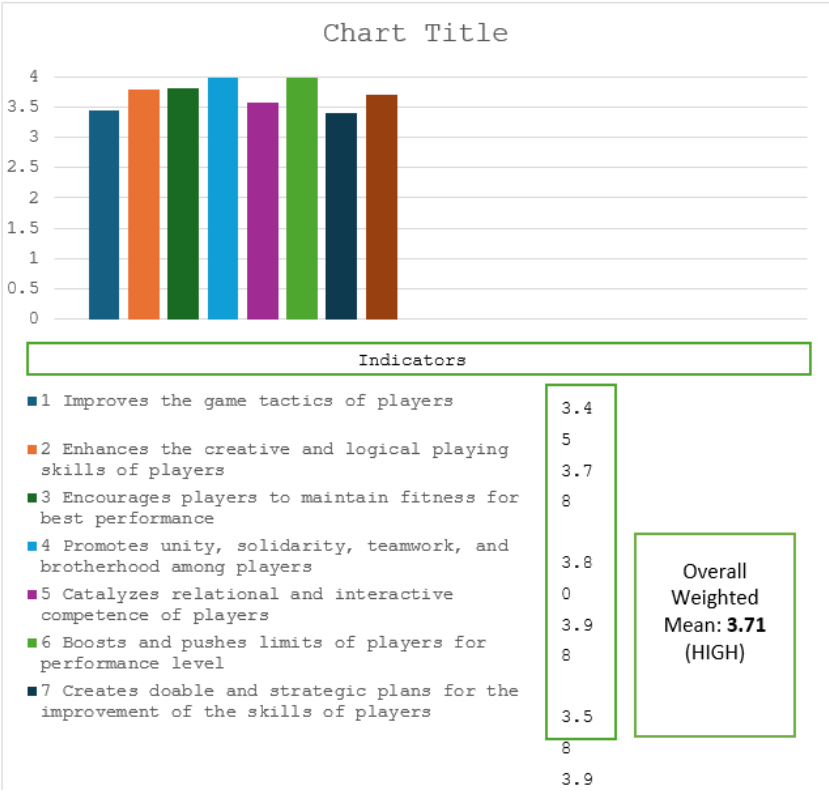
This domain entails monitoring critical on-field data metrics to impact approaches that may be applied to enhance in-game tactics, dietary regimens, and other essential areas that could morally enhance athletes' performance levels.

Table1. On-Field Sports Analytics of PSU Coaches

No.	Indicators	Average Weighted Mean	Descriptive Equivalent
1	Improves the game tactics of players	3.45	Highly Attained
2	Enhances the creative and logical playing skills of players	3.78	Highly Attained
3	Encourages players to maintain fitness for best performance	3.80	Highly Attained
4	Promotes unity, solidarity, teamwork, and brotherhood among players	3.98	Highly Attained
5	Catalyzes relational and interactive competence of players	3.58	Highly Attained
6	Boosts and pushes limits of players for performance level	3.98	Highly Attained
7	Creates doable and strategic plans for the improvement of the skills of players	3.40	Highly Attained
AVERAGE WEIGHTED MEAN		**3.71**	**Highly Attained**

Legend:

4	3.26 – 4.00	Highly Attained
3	2.51 – 3.25	Moderately Attained
2	1.76 – 2.50	Slightly Attained
1	1.00 – 1.75	Least Attained



The PSU coaches have a high level of attainment on the promotion of unity, solidarity, teamwork, and brotherhood among players as manifested in the average weighted mean of 3.98. Because this captures the mutual trust, partnership, and sense of shared purpose among players to deeply build a strong sense of unity and support within a group, it is clear that the coaches instill the spirit of camaraderie among their athletes. Through this, a true connection that transcends personal differences and fosters a cooperative and peaceful environment is created. The paper of Hettiry (2023) emphasized that while collaboration enables individuals to use their diverse skills, values, and beliefs to achieve goals they might not be able to achieve individually, team building entails bringing people together. Effective teamwork, which fosters better creativity and productivity at work as well as happier, healthier teams, is built on unity.

Coinciding with the results of the study, According to Baker et al. (2020), solidarity is therefore essential to the use of humanistic management. Additionally, their study offered a managerial perspective on the development of solidarity. The primary association between workplace participation and solidarity was shown to be influenced by the workplace's status as a public or private entity. They provided advice in the quest for humanistic management by concluding with recommendations for realistic, concrete workplace practices based on the model.

The data also show that the PSU coaches have a high level of attainment on boosting and pushing limits of players for performance level as indicated by the mean of 3.98. For players to reach their greatest potential and succeed in competitive settings, coaches must challenge them, encourage

constant growth, and help them develop the resilient mindset that is necessary for success. Coaches must establish a track record of pushing players hard—but not too hard—to gain their trust. Recognize the players' boundaries and establish a track record of reliability. Acquiring knowledge of each person's unique skills, limitations, and shortcomings will enable the coaches to become more reliable. Although coaching young athletes might be very demanding, it's crucial to keep in mind that they are developing and learning (Miele, 2021).

In like manner, encouraging the players to maintain fitness for the best performance has been highly attained by the coaches as indicated by the mean of 3.80. This suggests that sportsmen must always maintain the highest level of fitness, and coaches are essential in helping players develop this discipline. First of all, improved performance on the field is closely correlated with physical fitness. Peak physical state is characterized by improved endurance, strength, agility, and general athleticism in athletes. Coaches are aware that a player in superior physical shape can execute game plans more effectively, endure the physical rigors of competition, and recuperate from injuries more quickly. Coaches are effectively guaranteeing that the team performs at its best by pushing players to maintain their fitness levels, which maximizes both individual and team performance.

In line with the study's findings, the Self-Determination Theory states that to forecast self-determined motivation, three fundamental psychological needs must be met: relatedness, competence, and autonomy. These needs should be prioritized by the participants' coaches in the field. The essential desire to feel motivated is referred to as competence. The need to control one's own experiences and behavior is known as autonomy. Relatedness is the state of feeling a part of society. Athletes' levels of self-determined motivation may rise in proportion to the coaches' satisfaction with their basic requirements, which could improve psychological functioning. Athletes may perform better if they believe that their three basic psychological demands are met (Almagro, et al, 2020)

Other indicators that have been highly attained by the PSU coaches include enhancing the creative and logical playing skills of players (3.78) and catalyzing the relational and interactive competence of players (3.58). Incorporating both imaginative and analytical playmaking abilities into a team dynamic not only improves players' abilities on the field but also sparks higher levels of relational and interactive proficiency. Players who are encouraged to be creative might think beyond the box and execute daring plays and erratic moves while playing the game. Developing logical playing techniques also guarantees a tactical and deliberate decision-making process, which maximizes the team's effectiveness as a whole. This harmonious union of creativity and logic creates a dynamic team atmosphere in which players can communicate and work together on the field in an efficient manner, understanding each other's strengths and weaknesses in the process, and producing a highly competent and synergistic collective performance.

Moreover, creating doable and strategic plans for the improvement of the skills of players (3.40) served as the lowest bust still highly attained by the coaches of Pangasinan State University. This means that this is essential for the systematic improvement of players' skills. To create precise, attainable goals and interventions, coaches are essential in evaluating the strengths and weaknesses of both the team and the individual athletes. These strategies consider the particular requirements of every player, guaranteeing that progress is both focused and doable. Through the establishment of well-defined goals and the provision of an organized plan for improving skills, coaches enable players to concentrate on particular areas of their game, track their development, and gradually improve their expertise. In addition to maximizing training session efficacy, strategic planning gives players a feeling of direction and purpose, which eventually helps with ongoing skill development and team success.

The strategy is developed with an emphasis on laboriously examining many data points to determine the most effective techniques for enhancing athletes' talents. However, putting the plan into action

and seeing to it that it is regularly consulted, reviewed, and updated is just as crucial and difficult (analytics8, 2019). Overall, the PSU coaches have a high level of attainment in their on-field sports analytics as evidenced by the average weighted mean of 3.71. To gain a better understanding of players' conditioning to enhance their abilities, competency, and relationships with other athletes, coaches play a critical role in tracking and monitoring data such as players' positioning during games, fatigue during training, distance traveled, and other data.

Problems Encountered by PSU Coaches in their On-Field Sports Analytics

A relatively new profession called sports analytics employs data to assess things like athletic performance to maximize an organization's overall success and operational efficiency. Teams use on-field data metrics to make decisions about how best to use dietary plans, in-game strategy, and other techniques to improve the performance of their athletes. Organizations can use data off the field to track ticket sales, create marketing initiatives, and save operating expenses (Schroer, 2018)

Along this tone, it is thought that PSU coaches have difficulties incorporating on-field sports analytics into their methods and coaching activities.

*Theme 1: **"Broke**" by Jason Derulo featuring Stevie Wonder and Keith Urban*

The story of financial difficulties and the battle to make ends meet is told in the lyrics. The song perfectly expresses the struggle of working with little money and the will to keep going despite obstacles. In light of this, the coaches have disclosed that a factor impeding their respective goal of refining the athletes' skills is a lack of funding. One answer that has been noted is "*no budget*". Along with this, are the responses, " ….*kulang ang allotted budget (**The allotted budget is insufficient**).* " and "…*we sometimes spend for the training and food of the athletes*". This indicates that budget allocation should be made concretely. This may be because some coaches do not heartily endeavor to possibly create an annual budget intended for a year of implementation.

*Theme 2: "**Cannot Do Two Things at a Time: Conflict Between Academics and Extra-Curricular Activities"***

The demands that extracurricular activities and academics have on athletes' schedules might make it challenging for them to participate in both, which bothers coaches. This conflict highlights how important it is to prioritize tasks and manage your time well to match your academic obligations with your desire to play sports for improvement and training. Collective responses like " …*ang mga bata madami silang ginagawa* (*The student-athletes have a lot of things to do)* " and " …*difficulty to handle their academics and their training schedules*", etc. shoot the point along prioritization of undertakings.

*Theme 3: " **Kulang Subalit Kinaya (Lacking but managed)": Lack of Sports Facilities"***

The lack of sports facilities presents a major obstacle for coaches, making it more difficult for them to provide players with thorough and efficient training regimens. This presents a big obstacle for coaches since it makes it difficult for them to establish a setting that supports players' overall growth. This has an impact on aspects of player development like strength training, conditioning, and simulated games, which are essential for improving skills. Sports facilities are seen to put the team at a competitive disadvantage when compared to rivals with greater resources since athletes might not be able to practice in the best possible setting, which could have an impact on the performance of the entire team. The lack of sporting facilities makes it difficult for coaches to use cutting-edge training techniques and creative coaching methods, which makes it difficult for the team to keep up with changing training philosophies and game-changing tactics.

In summary, they met and exceeded this task with great strength and generosity, according to the comments.

Coping Strategies with the Problems Encountered on their On-Field Sports Analytics

•Budget Allocation

Based on the responses of the coaches, a vivid way of outsourcing from friends and relatives made their way to hurdle this challenge. As a workable tactic, other coaches looked at partnering with business associates to obtain shared resources or cheap technologies. Second, coaches gave priority to particular training components that fit the team's current needs and objectives, with an emphasis on KPIs that directly affect player development and game strategy. They also thought that coaches may effectively use sports analytics and navigate budgetary problems by combining creative partnerships with cautious financial management.

•Conflict between the Academics ang Extra-Curricular Commitment of Athletes

To understand the academic and extracurricular schedules of student-athletes, coaches had regular conversations with them in which the players felt comfortable sharing difficulties and time limits. As what has been noted in a response "*…do proper management of time*". Another one that has been mentioned which transpired this way, is "*be flexible and be adaptive to the changes*" since flexibility served as the key to handling these conflicts. For athletes who had other obligations or were under academic pressure, coaches also modified training plans or made other arrangements. This adaptability emphasized the value of leading a healthy lifestyle while simultaneously accommodating academic obligations.

One thing more, coaches also mentioned and had the piece of advice that "*…have to do the marking of priorities and have colors for urgency and not*" that targets the value of prioritization". Coaches emphasized the significance of academics while also recognizing the value of their events. They inculcated the value of time management and helped the athletes prioritize their obligations. Lastly, the coaches asked the other faculty members to support the athletes as has been transpired in their responses like "*…I talked the faculty members to give such permission for the athletes in their training and schedule for competition*"

Overall, a supportive and understanding approach, coupled with effective communication, enabled coaches to help athletes manage conflicts between academics and their events.

•Rarity of Facilities

The coaches made use of a combination of strategic planning, resourcefulness, and collaboration. First and foremost, they conducted a thorough assessment of available facilities and identified the areas where improvements or alternatives could be implemented. This involved understanding the specific needs of the athletes and the requirements of the sport. Some of the responses them emerged, "*…had many alternatives to address this, like partnering with other schools, community organizations, or sports clubs to share facilities"* and "*…asked the LGU for the utilization of their resources*". "…; *Naging resourceful kami* (***We became resourceful****)"* " instills the value of creativity and ingenuity just to have the facilities at hand, either using the alternatives, the utilization of property of others, and/or improvisation.

Off-Field Sports Analytics of PSU Coaches

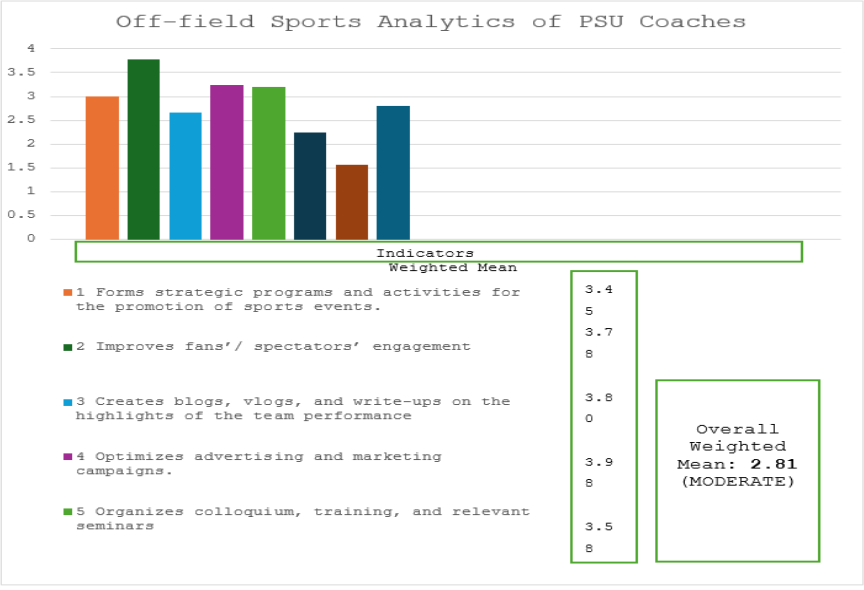
This focuses on the commercial aspect of sports. It entails keeping an eye on significant off-field data measures including fan interaction, ticket, and item sales, etc. This kind of data analytics aims to support sports teams' decision-makers in making better choices that will lead to higher growth and profitability.

Table 2. Off-Field Sports Analytics of PSU Coaches

No.	Indicators	Average Weighted Mean	Descriptive Equivalent
1	Forms strategic programs and activities for the promotion of sports events.	3.00	Moderately Attained
2	Improves fans'/ spectators' engagement	3.78	Highly Attained
3	Creates blogs, vlogs, and write-ups on the highlights of the team performance	2.67	Moderately Attained
4	Optimizes advertising and marketing campaigns.	3.24	Moderately Attained
5	Organizes colloquium, training, and relevant seminars	3.19	Moderately Attained
6	Uses data to help rightsholders take decisions that would lead to higher growth and increased profitability.	2.25	Moderately Attained
7	Drives team efficiency and increasing revenues through various sources, such as merchandise and ticket sales, media rights, and sponsorships.	1.57	Least Attained
AVERAGE WEIGHTED MEAN		**2.81**	**Moderately Attained**

Legend:

4	3.26 – 4.00	Highly Attained
3	2.51 – 3.25	Moderately Attained
2	1.76 – 2.50	Slightly Attained
1	1.00 – 1.75	Least Attained



The coaches have high attainment as regards the improvement of fans'/ spectators' engagement as indicated by the mean of 3.78. This implies that fan participation can add features like live commentary, fan interactions, or technology improvements to make the viewing experience more engaging and entertaining for the audience. They participate in a variety of sports, particularly when

there are contests. Affirming the results of the study, the current status of fan management and involvement in sports management, as well as its growing significance inside sports teams as a revenue driver, were examined in John's Scholar (2020) article. "Fan experience" has emerged as one of the most cutting-edge and pertinent ideas among the several facets of management found in sports companies. The findings suggested that controlling fan interaction has a beneficial effect on sports teams' bottom lines.

However, the coaches have moderate attainment in optimizing the advertising and marketing campaigns as evidenced by the mean of 3.24. This means that the coaches worked hard to hone and enhance the tactics and initiatives utilized to market and advertise sports coaches. A sports coach in this sense could be someone who offers coaching services, training plans, or specialized knowledge in a certain sport. Sedky, et al (2022) investigated how sports marketing might draw spectators to lesser-known sports. According to the study, sports media, sports advertising, star athletes, and sports sponsorship are the components of sports marketing that can draw viewers to less well-liked sports. The relationship between sports advertising and attractiveness towards less popular sports is moderated by the performance of national teams. In like manner, the coaches' function of organizing colloquium, training, and relevant seminars has been moderately attained as indicated by the mean of 3.19.

According to Will (2021), improving sports performance is still a crucial component of coaching. To get better at their sport, athletes need a coach who can effectively direct their technical, tactical, and physical development. Coaches can increase their expertise in this field through a range of instructional techniques. A planned curriculum that includes formal instruction on topics such as physiology, motor learning, psychology, cognition, and the impact of aging on training is essential for assisting athletes in enhancing their performance in sports.

Other indicators that the coaches have moderate attainment include a) forming strategic programs and activities for the promotion of sports events (3.00); b) creating blogs, vlogs, and write-ups on the highlights of the team performance (2.67), and c) uses data to help rightsholders take decisions that would lead to higher growth and increased profitability (2.25). Lastly, the coaches' function of driving the team efficiency and increasing revenues through various sources, such as merchandise and ticket sales, media rights, and sponsorships was the least attained as indicated by the mean of 1.57.

According to Maas (2020), athletic departments realize economic rents by paying college players less than what they could command in a free market. These rents are then used to fund non-revenue-generating sports, or those that would otherwise generate negative net income, as well as to pay for coaches and other administrative staff members' salaries and to construct sports facilities. In 2018, the athletic departments brought in an average of $125 million. A 71 percent increase in the losses from non-revenue-generating sports like men's golf and baseball and women's basketball, soccer, and tennis was more than offset by the spike in revenue from football and basketball.

Overall, the PSU coaches have moderate attainment on on-field sports analytics as evidenced by the overall weighted mean of 2.81. This implies that the coaches are at least somewhat successful in using analytics to evaluate and improve on-field performance. This suggests that they may be able to do better or that their level of competence might not be that great when compared to other benchmarks or standards. Additional information regarding particular areas of strength or weakness would be required to provide a thorough assessment.

Problems Encountered by PSU Coaches on Their Off-Field Sports Analytics

• ***"Miracle on Ice"****: A Story Related to Lack of Proper Support*

The 1980 US men's ice hockey team is a well-known example of a situation where inadequate support occurred. The squad, which was made up of collegiate and amateur players, had severe difficulties

because of a lack of institutional and financial support. In like manner, some coaches claimed that the has been a lack of support as the response, *"... lacking though*", "*need more*", and "*...hope to have more*" impart.

The ability to maintain present and expected desired living standards and financial independence is known as financial well-being. The study by Mogaji, et al. (2023) provided the findings of the theme analysis of interviews with 27 UK sportswomen to understand their experience of financial well-being. The study's findings revealed the subjective financial well-being of sportswomen, as well as the contextual and personal elements that impact their perceptions of well-being and the effects of financial well-being on overall quality of life and general well-being. In addition to highlighting the need to advance gender equity policies and practices that can positively impact sportswomen's financial well-being, this study has implications for a wide range of stakeholders, including governing bodies, lawmakers, sports media, team and talent managers, and financial institutions.

• ***Toka-Toka: Kanya-Kanya (Lack of Communication)***

Significant answers from the Google form include" ...*kanya-kanya ang advertising and marketing campaigns*" (**Each has their own advertising and marketing campaigns)**, " *little of advertisements, it is just only during regional and national competitions*" and "*... do not know if this will be considered, we just use the Facebook for advertisement that means for information only and not for profit".* This indicates that there is a news gap in the information flow about the occurrences. This could be a way of conveying the concept that there isn't much engagement or communication, perhaps in a social or interpersonal setting. It might draw attention to a situation in which all those participating in sports are not successfully interacting with one another, which could result in miscommunication, loneliness, or a lack of mutual understanding. All partnerships require communication, yet ineffective communication might leave one unclear of their position (Eather, et al, 2023)

•***Wanting and Missing: Little or No Engagement in Off-Field***

This implies that athletes are noticeably somehow uninterested in or uninvolved in components of the sport that take place off the field. This suggests that there is a need or expectation for increased involvement, but that expectation or desire is not being fulfilled, leading to a lack of involvement or dedication outside of the actual practice or game sessions. This also suggests that there is room for improvement in inspiring or motivating both the coaches and athletes to be more actively involved in the off-field components of their sports participation, which are things like team meetings, strategic planning, fitness training, or any other activities that contribute to the overall success and development of the team or individual athletes.

The relationships between players' on-field performance and their involvement in off-field activities, their opinions of the club's support for their off-field lifestyle, and the quantity and quality of their time spent away from the football field. After adjusting for confounding variables like team success that season, the results indicated that when these variables were combined, they predicted 13% of the variance in on-field engagement. These factors were especially significant for players in their early career (0–4 years), as they may predict 21 percent of the variation in how these players approached their sport.

Coping Strategies with the Problems Encountered by The PSU Coaches on Their Off-Field Sports Analytics

•***Spending their own money is the means to address the lack of proper support.***

A coach who invests his own money to meet needs or overcome obstacles is said to be using personal finances as a solution to address the lack of appropriate support. This method shows dedication to the task even in the absence of outside funding. But this points to a weakness in the outside support structures, which may make people wonder if depending only on one's resources is equitable in the

long run. Self-funding can be an effective short-term measure, but it might not be a long-term plan, which highlights the need for stronger support networks.

As the respondents have shared, "…*we shell out", "I spend my own money to sustain",* and "…*ako minsan ang gumagastos* (***I am sometimes the one who spends****.)"* " This emphasizes the occasional or regular personal financial contribution by coaches in the handling the activities in their sports events.

•Follow up as the Means to Address Lack of Communication

The respondents have shared that the most common remedy is by doing follow-up. This suggests that there can be barriers in the way of effectively communicating solutions to issues about the analysis of sports data collected off the field. The successful use of coping techniques may be hampered by this lack of communication, which could have an adverse influence on the general efficacy and advancement of on-field sports analytics. Moreover, closing this communication gap is essential to guaranteeing a smoother and more effective resolution of issues in the field of sports analytics.

Many respondents shared that follow-up served as the best medium to address this challenge. They said that "…*the programs and activities for the promotion of sports events and fans'/ spectators' engagement are not attained because this is not comminated properly and no follow up at all for its implementation* ". Also, "…*blogs, vlogs, and write-ups that highlight the team performance were supposedly given such highlight, but they were not because this is not followed up. But, this time, fortunately, the university is already updated with this activity"*

•Little or No Engagement in Off-Field

The coaches were organizing training and seminars yet not being done regularly. But this is, they claimed, on their schedule. As a response emerged " …*we do not do this regularly but at least, it is on our calendar*". Although the coaches admit that these events are not regularly held, they stress that they have at least scheduled them in their schedule. Although they want to organize these events, their response suggests that they recognize their value and that there might be obstacles or other problems hindering continuous implementation.

CONCLUSION

The PSU coaches demonstrate a high level of attainment in on-field sports analytics particularly on their dedication to monitor and analyze critical on-field data metrics which contribute to the enhancement of athletes' performance, competency, and relationships within the team. The challenges that coaches include financial limitations, conflicts between extracurricular and academic activities, and a lack of sports facilities where these challenges are handled through creative budget allocation, adaptive management of athletes' commitments, and resourceful collaboration. They exhibit a moderate level of attainment in off-field sports analytics that indicates room for enhancement and a need for detailed assessments to identify specific areas of strength and weakness. The difficulties that the coaches faced with off-field sports analytics point to concerns with poor support, communication breakdowns, and low involvement, calling for tactics like coaches investing their own money and stressing follow-up to address these issues. This can be addressed by encouraging support networks, refining communication pathways, and augmenting the drive to cultivate comprehensive achievement in sports analytics beyond on-field undertakings.

Recommendation

The Pangasinan State University may cooperate with government sports agencies to offer specific training programs and workshops that will give coaches advanced analytical techniques and tools to help them in their on-field sports analytics attempts. Working with government agencies can create educational programs that support an environment of constant learning and guarantee coaches stay

up to date on the most recent developments in sports analytics. Create a special committee or support structure that looks for outside sponsors, funding sources, and collaborations to help sports programs find more resources and overcome budgetary limits. Advocate for the implementation of a structured professional development program to improve PSU coaches' off-field sports analytics abilities which emphasizes addressing specific areas of improvement to maximize coaches' overall effectiveness. Establish strong support systems, create efficient channels of communication, and offer incentives for PSU coaches to become more involved, as well as investigate long-term funding options and put in place organized follow-up procedures, to surmount obstacles in sports analytics off the field and guarantee complete success in sports administration outside of the playing field. This may be used for extension service that targets the advancement of the proficiency of sports coaches not only for the University but for all sports coaches even outside the premises of the institution and be the means as an input in the crafting the Sports Development Program of the University.

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