

Development of a Sports Performance Metric for the State Universities and Colleges in the Philippines

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Abstract Aiming to keep up with the global trends in sports performance brought some challenges among State University and Colleges (SUCs) in Bicol Region. The study is qualitative and quantitative research to develop sports performance metrics for the state universities and colleges in the Philippines. Practices of SUCs in sports development served as a basis to create metrics in measuring SUCs' sports performance in the Bicol Region. The developed metrics were content and face validated by five SUC sports directors, and five professors in sports science. Suggestions from these experts were sought to improve the content and construct of the developed metrics. Fifty respondents pilot-tested the developed metrics of the study and selected sports stakeholders participated in the focus group discussion to discuss their comments and suggestions for the metrics. The development of the metrics was conducted in four phases: selecting possible indicators of the standards; content and construct validation of indicators; try out of the evaluation tool and test of reliability. Results showed that all of the items in the subscales included in the developed standard metrics can be considered good to excellent and can be used to assess the state universities and college's sports performances. The development of the metrics on sports performance may contribute to the total quality management of the educational institution and may provide in promoting healthy and alert citizenry.

Keywords Assessment, Practices, Sports Professionalization

1. Introduction

Lifestyle is challenging at this moment of being in the 21st century. An individual's perception of various endeavors and diversity has started a massive change in management practices in terms of attitudes, values, and perceptions among individuals. With an emphasis on the advent of the internet and mobile technology, it posed a greater challenge among the Generation Alpha to balance ways of life. From the article of McCrindle M. [1], the author defined Generation Alpha as the millennial generation, born and shaped fully in the 21st century and the first generation that in record numbers will see in the 22nd century as well. In this generation, it marked an increased focus on formal education, time spent behind screens and digital devices that they live largely indoors, knowing that their parents place priority on homework, coaching and extra-curricular activities over a carefree childhood. Based on this trend, it is projected that by 2027, when they reach adulthood, this generation will be overweight or obese. In consideration of these individuals and their learning styles, it is the task of the educational institution's teaching force to maximize teaching strategies, pedagogy or andragogy.

The Department of Education has imposed "One Child, One Sport" in order to come up with the objectives of having a healthy citizenry. Awareness of fitness has been globally increasing as evidenced in the increasing number of organizations in society with an advocacy to promote fitness and wellness in our country. Promotion of sports is stated in our Constitution Article XIV section 19, (1 & 2) to

wit (1) the state shall promote physical education and encourage sports programs, league competitions and amateur sports, including training for international competitions, to foster self-discipline, teamwork, and excellence for the development of a healthy and alert citizenry, and 2) all educational institutions shall undertake regular sports activities throughout the country in cooperation with athletic clubs and other sectors [2]. With this legal basis, the Higher Educational Institutions (HEIs) formed the Philippine Association of State Universities and Colleges (PASUC) with an aim to institutionalize an annual academic, cultural and sports competition among SUC's nationwide, captioned as PASUC National Culture and Arts Festival and the State Colleges Universities Athletic Association National Games. The over-all result of SCUAA National Games 2018 held last February, 2018 Region V ranked twelfth (12th). As to the number of golds, silver and bronze medals earned, Region V (Bicol) got three, eight and twenty-five respectively. Sixteen (16) regions in the country participated in the SCUAA National Games 2018. Considering this result, the Bicol Region did not perform well in terms of sports. It implies that promotion of sports is not a priority and needs intervention to be aligned with the country's goal. Education should be holistic and should promote total development of an individual by offering diverse avenues for learning.

The Diehl research [3] explored the factors for the participation of students in sport and discussed the use of the university sports curriculum. Further to the Eime study [4], demographic improvements in physical activity were investigated, and Salmon [5] also concluded that physical environmental influences were strongly correlated with children's physical activity. The Philips research [6] concluded that past sport participation was correlated with current exercise and health in urban teenage girls, while the Anjali study [7] examined potential obstacles to physical activity among college students. As a result, Jones [8] evaluated the Physical Activity Recommendations for 2008 with a suggestion that involvement in physical activity could enhance cardiometabolic, cardiovascular, bone health, weight status, memory and decreased risk of depression from 3 to 17 years of age. Saint-Maurice [9] argued that retaining higher levels of Leisure Time Physical Activity (LTPA) and rising LTPA in later adulthood were correlated with a similar low risk of mortality and proposed that midlife is not too late to begin physical activity

This study aimed to strengthen our regional aspirations and intensify the Section 2 of our Constitution. Giving full attention to this scenario can be a greater chance to craft out a better recommendation to level up our regional excellence in organization and management of sports. Martin [10] used measures and past statistical models to evaluate players, reduce injuries and improve sports performance. Martin [10] suggested that one should learn to leverage deep understanding of sports principles, rules,

attributes, measures and performance outcomes. This study would magnify the monitoring and evaluation of sports performance of public higher education institutions. Furthermore, the study would offer new insights about qualitative physical health values which cover up promotion of a healthy and alert citizenry among students and be investigated for better understanding of what to measure leading to the development of standard metrics. At this time, diversity offers a lot of challenges to come up with a standard metrics to follow in an intent to foster justice and balance in measuring performances that would serve as blueprint for the future attracting and retaining the best and brightest talent paramount to the institution ideals as discussed by Lynch [11]. Performance measurement is part of an educational management tool with an aim of evaluating program delivery and practices. The researcher has a deeper interest to benchmark SUC's pedagogy and andragogy as to promote sports and physical participation anchored to the national goal thus hereby crafted out this study.

2. Methodology

2.1. Research Design

This study used a mixed-method which covered quantitative and qualitative research. Quantitative research used descriptive-questionnaire type. It included data analysis consisting of statistically analyzed scores collected using the researcher-made instrument based on the PSC Five-Year Sports Development Plan for 2017-2022. A purposive sampling procedure was administered wherein five (5) SUCs in Bicol Region were investigated for sports performance practices. The study also used qualitative research to understand underlying reasons, opinions, motivation, and processes in developing metrics measuring SUCs sports performance. Identifying these practices would serve as a basis for developing standard metrics in measuring the sports performance of SUC's in Region V.

2.2. Instrument and Data Gathering Procedure

The instrument was crafted based on the PSC Sports Development Plan for year 2017-2022 Research objectives were answered upon identification of SUC's practices along sports governance, awareness, accessibility, sports institutionalization, facilities and linkages through focus group discussion and unstructured interview of the respondents of the study. Respondents were informed about the purpose, importance, and their contributions to the study and that honest answers served well the institution. The researcher has transcribed and recorded their responses for analysis. Thematic analysis was utilized then came up with the development of metrics.

2.3. Research Locale and Population

The study was undertaken in the Bicol region, the subject of the study and the respondents were the state universities and colleges' sports training program developers and stakeholders. The provinces were Albay and Camarines Sur, SUCs in the Region were Bicol University (BU) in Albay, Bicol State College of Applied Sciences and Technology (BISCAST), Camarines Sur Polytechnic Colleges (CSPC), Partido State University (PARSU) and Central Bicol State University of Agriculture (CBSUA) in Camarines Sur. SUCs in the region has sports directors/sports coordinators with coaches/trainers/PE Instructors, student athletes of different events such as archery, arnis, athletics, badminton, baseball, basketball, boxing, chess, football, futsal, karatedo, lawn tennis, sepak takraw, softball, swimming, table tennis, taekwondo, volleyball, beach volleyball and dance sports.

2.4. Data Analysis

The data analysis techniques applied in the study are Likert scale, weighted mean, Cronbach alpha, and thematic analysis. The following methods were utilized to analyze the data gathered in the Quantitative method. The study used the Likert scale with the verbal description for Always (A), Most of the time (M), Sometimes (S), Rarely (R), and Never (N). In treating quantitative data, it used the Weighted Mean to determine the average of the responses in each of the given questions. This was used to find a single value out of the different results and interpret the data about a given condition. Chronbach Alpha was also used to determine the internal consistency of the items included in the developed standard metrics.

Qualitative data were drawn from the focus group discussion conducted in the study which consisted of opinions, perspectives and suggestions that focus on the processes involved in developing metrics of sports performance among the respondents. Thematic analysis approach is used in the study to determine the most common answers as they developed the existing metrics, if there are. Furthermore, thematic analysis was used to deduce the themes surfacing from the discussion conducted. Based from the analysis: Sports Manual, Sports Program, Sports Development, Health and Safety of Athletes, Benefits/Incentives of Athletes, Coaches and Trainers, Regional/National Competition/s, Training Program/Practice, Administration Supports in Sports, Problems Met by Coaches/Trainers/Athletes should be considered in evaluating the SUC sports performance. The data from the analysis served as the blueprint in developing the metrics in measuring sports performance.

3. Results and Discussion

The study developed a standard metrics in measuring

the performances of State Universities and Colleges in sports in Region V based on the current performance of different SUCs in Bicol, Philippines.

3.1. Development of a Standard Metrics in Measuring the Performances of State Universities and Colleges in Sports

The study supports the country's effort to promote sports that foster positive values for developing a healthy and alert citizenry as mandated in the constitution. The RA no. 6847 is known as Philippine Sports Commission Act, with a program offering Bachelor of Science in Exercise and Sports Sciences (CMO. 81, S. 2017); as described, SUC's practices no existing metrics in measuring sports performance. Furthermore, SUCs provide activities and based their sports performance on the number of awards, activities, programs, and projects implemented. In addition, there was not a formal document outlining the criteria of the SUCs sports performance. With these premises, there is a need to develop metrics in measuring the performances of SUCs when it comes to the planning, implementation, monitoring, and evaluation of sports programs and activities. The output of the study will serve as a tool to identify strengths and weaknesses to improve, enhance, and align SUC's practices to the existing legal bases in promoting sports participation to develop a healthy and alert citizenry. The development of the metrics in measuring the performances of SUCs in sports were conducted in four (4) phases which are selection of possible indicators of the standards; content and construct validation of indicators; try out of the evaluation tool and test of reliability.

3.1.1. Phase 1: Selection of possible indicators of the standards

In selecting possible indicators of the standards Philippine Sports Commission Five-Year Sports Development Plan (Second Cycle) 2017-2022 was integrated. According to the sports development plan of Philippine Sports Commission, sports programs and projects should be implemented in accordance to the six mission statements of the commission which are Sports Governance, Awareness, Accessibility, Institutionalization, Facilities and Development, and Linkages. In which these six mission statements were utilized as the parameters for the standard metrics being developed and in each parameter five (5) standards or indicators were integrated. The developed metric includes six (6) parameters with five (5) indicators each parameter (Appendix A).

Sport governance refers to the exercise of power, with consideration given to influence, authority, and the nature of decision making. In the developed measuring tool for sports performance, sports governance has five standards for each indicator. The standards for sports governance

are simplified programs of Philippine Sports Commission under Mission 1-Sports Governance. Besides, the indicators used in the metrics are in line with the dimensions of sports governance as described in the article of Milina Parent (2016), in which she identified the dimensions of good sports governance are transparency, accountability and participation [12].

These indicators are 1) The institution has an existing quality management system for sports development programs; 2) The institution is implementing a well-defined capacity-building program for its employees dealing with sports services; 3) The institution has an existing data banking, information processing and business solution for all its sports-related programs and services; 4) The institution has various fund-sourcing activities involving various sectors of the community; 5) The institution has a monitoring and evaluation system of stakeholders' participation in sports programs implemented.

Sports awareness is the second parameter in the developed metrics. Sports awareness is described as the promotion of an understanding of opportunities to get involved in sport and physical activity. It highlights opportunities for people of all abilities to participate in sport, become an athlete, and go as far as their ability and motivation will take them. The indicators for sports awareness are based on the programs under mission 2: Sports awareness of Philippine Sports Commission. Besides, the identified indicators for sports awareness are along with the Sport and Sustainable Development Guide (SDG) indicators of the Commonwealth [13]. As stated, it provides a design of indicators and tool kit to measure the contribution of sports, physical education and physical activities to the sustainable development guide.

In the developed metrics the identified indicators are: 1) The institution has an existing communication office task to create publicity and communication interventions to plan and manage the organization's identity and image, incorporating its sports-related services and programs; 2) The institution has an existing medium and long-term development plan incorporating its sports-related services and programs; 3) The institution periodically implements various sports-related events following national and international standards; 4) The institution participates in local, national and international sports events and competitions; and 5) The institution has an existing sports manual with a clearly defined policy for athletes' incentives and awards system as well as safety and health policies.

Sports accessibility is the third parameter in the developed metrics for measuring the sports performance of SUCs. The indicators of this parameter are: 1) The institution has a support mechanism to draw families and communities to a culture of fun and play; 2) The institution is giving emphasis on the promotion of a sporting culture to marginalized sectors (women, differently abled, street children, and migrant youth); 3)

The institution is implementing sports programs in support of the existing national development plan through community-based therapy and recovery programs using sports; 4) The institution's sports facilities are accessible to persons with disabilities; and 5) The institution has an existing sports-related services and programs targeting the marginalized sectors.

The standard indicators for sports accessibility is based on the program indicator of Philippine Sports Commission under Mission 3. Furthermore, the indicators in the developed metrics are similar to policy recommendations made [14].

Sports Institute is the fourth parameter in the developed metrics of the current study. The indicators for this parameter are: 1) The institution's sports development plan and implementation reflect the preservation, promotion and propagation of the rich cultural heritage of indigenous people through revival of indigenous sports games; 2) The institution has an established talent search and development program for sports development; 3) The institution has an established sports education program for coaches, game officials, sports managers, sports leaders, and the like; 4) The institution introduces the latest technologies in coaching, training and officiating local and international events; 5) The institution's sports institute has legal personality and structural foundation as reflected in its organizational structure.

The indicators of the sports institute are based on the program indicators under mission 4 of Philippine Sports Commission. Besides, the standards adopted in the developed metrics are in line with the article of Zehrer et al. where it was explained that competitiveness of the sports athletes is affected on how the sports institute implements its training and events [15].

Sports Facility Development is the 5th parameter of the developed measuring tool for SUCs' sports performance. The indicators for sports facility development are: 1) The institution is following defined national and international standards for the types of sports facilities acquired by the organization; 2) Managers of sport-related infrastructure projects closely coordinate with the institution's board/leadership as well as stakeholders to identify and approve particular sports facilities; 3) The institution has an existing inventory of the number and types of facilities, including its utilization rates, downtime/uptime data; 4) The institution has a well-defined maintenance and upgrading plans of all its sports facilities; and 5) The institution has an existing facility booking system.

The standards for the sports facility development are based on the program indicator under mission 5 of the Philippine Sports Commission. Furthermore, sports facility development is one of the factors affecting sports performances as explained. The study of Hadzik emphasizes the importance of a good sports facility and how it contributes to the sports development in a college institution [16].

Sports linkages are the sixth and last parameter in

measuring the SUCs sports performance. In the developed measuring instrument, the indicators for sports linkages are: 1) The institution establishes, develops and strengthens linkages with other sports academies and training centers nationwide/worldwide; 2) The institution has an existing linkage with the local government units, local and national sports associations, government agencies, non-government organizations and mass media; 3) The institution establishes and strengthens bilateral cooperation and agreements with as many local, national and international sporting bodies as possible; 4) The institution conducts research on sports, fitness and wellness practices to aid in local and/or national sports-related program/project/policy formulation; and 5) The institution ensures optimum participation of its elite athletes students in international sports.

The indicators for sports linkages are based on the standard program indicators of Philippine Sports Commission under mission 6. The indicators were developed were also based on the realization that sports success is a collaborative effort. Similarly, Anna Gerke, described the interorganizational linkages in sports industry and how they develop in time [17].

3.1.2. Phase 2: Content and construct validation

The developed metrics were content and face validated by five SUC sports directors, and five professors in sports science professors. Suggestions from these experts were sought to improve the content and construct of the developed metrics.

3.1.3. Phase 3: Pilot testing of the developed metrics

Fifty respondents composed of sports coordinators, coaches and professors were asked to utilize the developed metrics by rating the level of sports performance of their organization based on the given statements for each subscale. Respondents before trying out the tool were informed that there were no right or wrong answers.

3.1.4. Phase 4: Test of reliability

The data used to test the reliability of the metrics were obtained from the pilot-testing. Internal consistency reliability or the Cronbach alpha refers to the homogeneity of items intended to measure the same quantity, that is, the extent to which responses to the items are correlated. Felder suggests that an alpha of 0.75 or greater is acceptable for instruments that measure achievement and 0.5 or greater is acceptable for attitude assessments [18]. Thus, overall, the result of the Cronbach analysis for the developed standard metrics shows that the items included are considered excellent ($\alpha = .9738$) and can be utilized to measure the sports performance of State Universities and Colleges.

Shown in Table 1 are the different subscales developed, the corresponding number of items, and the results of the Cronbach analysis using Microsoft Excel.

Table 1. Sport Development Metrics Cronbach alpha results

Subscale	No. of Items	Cronbach Alpha	Interpretation
Sports Governance	5	0.9517	Excellent
Sports Awareness	5	0.8856	Good
Sports Accessibility	5	0.8876	Good
Sports Institutionalization	5	0.8866	Good
Sports Facilities Development	5	0.9178	Excellent
Sports Linkages	5	0.9192	Excellent
OVERALL	30	0.9738	Excellent

The metrics included in the sports governance subscale consisted of 5 items that were found to be highly excellent ($\alpha = .9517$). This subscale sought data on the SUCs existing quality management system for sports development programs, capacity building programs being implemented, recording and utilization of data relevant to sports, including monitoring and evaluation system for stakeholders' participation.

For the sports awareness subscale, the 5 metrics included were found to be good items ($\alpha = .8856$). This subscale aims to determine the existing communication plan and activities of SUCs to define the image and identity of the organization's sports-related services and programs. It also sought data on the existing medium and long-term development plan; implementation and participation in local, national and international sports events and competitions; including policies on incentives and awards systems as well as safety and health standards.

The sports accessibility subscale includes metrics to determine the support mechanisms of the organization to promote the sporting culture to marginalized sectors as well as implementation of sport programs supporting the existing national development plan of the country. Items in this subscale were found to be good metrics as shown by the Cronbach alpha of 0.8876.

Under the sports institutionalization subscale were items determining the talent search and sports development program of the organization. It also includes metrics for sports education programs for coaches, sports managers, game officials and other sports leaders and personalities. Standards on introducing the latest technologies in coaching, training and officiating local and international sport events were also included on this subscale. The Cronbach analysis shows that items included in this subscale were found to be generally good ($\alpha = .8866$).

Metrics included in the sports facilities development subscale can be considered as excellent items as shown by its Cronbach analysis result ($\alpha = .9178$). These items include metrics on following defined national and international standards for the types of sports facilities, inventory of the sports facilities, including a well-defined maintenance and upgrading plans.

Finally, the sports linkages subscale which aims to

determine the established partnerships of the SUCs with various organizations in the community can also be considered as excellent as supported by its corresponding Cronbach alpha result of 0.9192. Most of the items in this subscale deal with the existing bilateral cooperation and agreements with as many local, national, and international sporting bodies as possible.

4. Conclusion and Recommendation

Metrics is a tool of measurement that gives information on a process or activity to assess the level of quality or the attainment of goals and performance. Development of the metrics was conducted in four phases which are the selection of possible indicators of the standards; content and construct validation of indicators; try out of the evaluation tool and test of reliability. Results showed that all of the items in the subscales included in the developed

standard metrics can be considered as good to excellent items and that it can be used to assess the performances in sports of the state universities and colleges. Based from the findings of the study, the developed sports performance metrics may be recommended for utilization.

APPENDIX A

SPORTS PERFORMANCE METRICS FOR STATE UNIVERSITIES AND COLLEGES

DIRECTIONS: Each of the statements on this questionnaire expresses your rating on the level of sports performance of your organization. There are no right or wrong answers. On a seven-point scale, you are to express your assessment of your organization as expressed in each statement. The seven points with its corresponding interpretation and description are as follows:

Rating	Interpretation	Description
1	<i>Absolutely Inadequate</i>	The institution's practice to fulfil the criterion is not implemented. There are no plans, documents, evidences or results available. Immediate improvement must be made.
2	<i>Inadequate and Improvement is Necessary</i>	The institution's practice to fulfil the criterion is still at its planning stage or is inadequate where improvement is necessary. There is little document or evidence available. Performance of the institution's practices shows little or poor results.
3	<i>Inadequate but Minor Improvement will make it Adequate</i>	The institution's practice to fulfil the criterion is defined and implemented but minor improvement is needed to fully meet them. Documents are available but no clear evidence to support that they have been fully used. Performance of the institution's practice shows inconsistent or some results.
4	<i>Adequate as Expected</i>	The institution's practice to fulfil the criterion is adequate and evidences support that it has been fully implemented. Performance of the institution's practice shows consistent results as expected.
5	<i>Better than Adequate</i>	The institution's practice to fulfil the criterion is better than adequate. Evidences support that it has been efficiently implemented. Performance of the institution's practice shows good results and positive improvement trend.
6	<i>Example of Best Practice</i>	The institution's practice to fulfil the criterion is considered to be example of best practices in the field. Evidences support that it has been effectively implemented. Performance of institution's practice shows very good results and positive improvement trend.
7	<i>Excellent (Example of World-Class or Leading Practices)</i>	The institution's practice to fulfil the criterion is considered to be excellent or example of world-class practices in the field. Evidences support that it has been innovatively implemented. Performance of the institution's practice shows excellent results and outstanding improvements trends.

You are to CHECK the appropriate box which best indicates how closely you rate your organization as expressed in each statement. Please mark ONLY ONE answer, do not choose “in-between” categories.

SPORTS PERFORMANCE INDICATOR	1	2	3	4	5	6	7
SPORTS GOVERNANCE							
1. The institution has an existing quality management system for sports development programs.							
2. The institution is implementing a well-defined capacity-building program for its employees dealing with sports services.							
3. The institution has an existing data banking, information processing and business solution for all its sports-related programs and services.							
4. The institution has various fund-sourcing activities involving various sectors of the community.							
5. The institution has a monitoring and evaluation system of stakeholders' participations in sports programs implemented,							
SPORTS AWARENESS							
6. The institution has an existing communication office task to create publicity and communication interventions to plan and manage the organization's identity and image, incorporating its sports-related services and programs.							
7. The institution has an existing medium and long-term development plan incorporating its sports-related services and programs.							
8. The institution periodically implements various sports-related events following national and international standards.							
9. The institution participates in local, national and international sports events and competitions							
10. The institution has an existing sports manual with clearly defined policy for athletes' incentives and awards system as well as safety and health policies.							
SPORTS ACCESSIBILITY							
11. The institution has a support mechanism to draw families and communities to a culture of fun and play,							
12. The institution is giving emphasis on the promotion of a sporting culture to marginalized sectors (women, differently abled, street children, and migrant youth).							
13. The institution is implementing sports program in support of the existing national development plan through community-based therapy and recovery programs using sports.							
14. The institution's sports facilities are accessible to persons with disabilities							
15. The institution has an existing sports-related services and programs targeting the marginalized sectors.							
SPORTS INSTITUTE							
16. The institution's sports development plan and implementation reflect the preservation, promotion and propagation of the rich cultural heritage of indigenous people through revival of indigenous sports games.							
17. The institution has an established talent search and development program for sports development.							
18. The institution has an established sports education program for coaches, game officials, sports managers, sports leaders, and the like.							
19. The institution introduces latest technologies in coaching, training and officiating local and international events.							
20. The institution's sports institute has legal personality and structural foundation as reflected on its organizational structure.							
SPORTS FACILITIES DEVELOPMENT							
21. The institution is following defined national and international standards for the types of sports facilities acquired by the organization.							
22. Managers of sport-related infrastructure projects closely coordinate with the institution's board/leadership as well as stakeholders to identify and approve particular sports facilities.							
23. The institution has an existing inventory of the number and types of facilities, including its utilization rates, downtime/uptime data.							
24. The institution has a well-defined maintenance and upgrading plans of all its sports facilities.							
25. The institution has an existing facility booking system							
SPORTS LINKAGES							
26. The institution establishes, develops and strengthens linkages with other sports academies and training centers nationwide/worldwide.							
27. The institution has an existing linkage with the local government units, local and national sports associations, government agencies, non-government organizations and mass media.							
28. The institution establishes and strengthens bilateral cooperation and agreements with as many local, national and international sporting bodies as possible.							
29. The institution conducts research on sports, fitness and wellness practices to aid in local and/or national sports-related program/project/policy formulation.							
30. The institution ensures optimum participation of its elite athletes students in international sports.							

Thank You and God Bless!

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