

University Education Academic Policies and Students' Sports Talent Development in Elite Sports in the Universities in Kenya

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Abstract

Literature has revealed that United States of America and other European countries associated with monopolization of performance in international sports competitions, like Olympic Games, have collaborated with their universities to nurture talented students pursuing university education. The universities in Kenya have contributed insignificantly to sports' talents development, particularly talents that represent the country in international sports competitions. Education reform in Kenya is phasing out the 8-4-4 curriculum in favor of 2-6-3-3-3 education system. The embraced curriculum has introduced talent pillar on sports as an academic pathway in the education system including universities. This study investigated the nexus between university education and students' sports' talent development in selected universities in Kenya. The objective was to establish the relationship between universities' education academic policies and students' sports talent development. The study was anchored on systems theory, since management of sports in the universities is guided and informed by structured sports management sub-systems. The study employed both qualitative and quantitative methods in a convergent parallel mixed methods design. The tools for collecting data were questionnaires, interview schedules, observation, content analysis and focus group discussion. The response rate was 96.2% of student respondents. The reliability was established through generating Crobach's alpha coefficient as 0.714. Cross tabulation methods facilitated the testing of the null hypothesis; (H_{01}). The hypothesis was rejected, $\chi^2 (16) = 97.397$, $p \leq 0.05$ implying a significant relationship between implementation of university academic policies and students' talent development in elite sports in the universities in Kenya. However, Cramer's V (0.253) and Pearson, R (-0.004) respectively revealed that the relationship was moderate and inverse. The findings of the study revealed that current university policies emphasize on academics and not talent development. The study recommended that university academic polices be revised to increase the strength and change the direction of the relationship.

Key words: *Nexus; university education; talent; sports; students' sport talent development.*

1.0 Introduction

The relationship between university education and students' talent development in elite sports is a phenomenon that has generated interest amongst scholars (Kaves, 2017). On a global context, United States of America (U.S.A), Jamaica and Canada (Rubin & Rosser, 2014); United Kingdom (U.K), France and Germany (Aquilina, 2013; Aquilina & Henry, 2010); Australia and New Zealand (Georgakis et al., 2014) acknowledge the unique role played by higher education in nurturing and developing students' talents in elite sports.

University education has been used by the aforementioned countries as a strategy through which talented individuals are scouted, identified, recruited and admitted into the university academic programs (Aquilina, 2013). Capranica and Guidotti (2016) indicated that in 2012 Olympic Games in London, the national teams that represented United Kingdom and Germany were composed of 56% and 53% university students respectively. Integrating academics and students' talent development in elite sports require prudent sport management strategies, institutional academic policies and structures that are able to balance the dual pathways (Kaves, 2017).

The universities in Kenya have not contributed significantly to talents that represent the country in international sports competitions. Kenya is phasing out the 8-4-4 to embrace the 2-6-3-3-3 curriculum. The embraced curriculum has considered talent development, including talents in sports as an academic pillar among the three learning pathways at senior secondary and university education. The Higher Education Curriculum Framework (HECF) is yet to provide clear policy guidelines to link academics with

talents after secondary school phase (MOEST, 2017). The phenomenon is compounded by the fact that recruitment of students to both public and private universities is only based on high school academic credentials, without any consideration to talent, particularly talents in elite sports. Integrating academics and students' talent development in elite sports require customized prudent elite sport management strategies, structures and policies that are flexible so as to balance both the elite sports and the academics in university education (Kaimenyi & Rintaugu, 2011; Kaves, 2017). This study was designed to investigate the relationship between university education and students' sports talent development in an attempt to inform the implementation strategies that include the development of students talented in both academics and elite sports.

Statement of the problem

Countries in America, Australia and Europe have adopted the nexus between university education and students' talent development as a strategy to create monopoly in international sports competitions, including Olympic Games (Aquilina 2013; Georgakis et al., 2014; Kaves, 2017; Rubin & Rosser, 2014). They have underscored the role played by higher education institutions, particularly the universities in nurturing and developing students' talents in elite sports. Universities in Kenya have in the past placed higher premium on academic credentials and neglected talent development in elite sports. There is a major disconnect between university education and students' talent development in elite sports in Kenya. Universities have not integrated academic in education with students' sports talent, considering the needs of talented students in elite sports during their sports training and

competitions. The country's education reform has embraced 2-6-3-3-3 Curriculum to replace the 8-4-4 system of education.

The embraced curriculum has introduced talent pillar including sports as an academic pathway in education including university education system. The curriculum in the university education is yet to be implemented. An Empirical data generated through this study will inform on policies and structures towards the implementation of the talent pillar in 2-6-3-3-3 curriculum. This study was designed to investigate the relationship between university education academic policies and students' sports talent development in elite sports in universities in Kenya.

Research Objective

The study aimed to establish the relationship between university education academic policies and students' sports talent development in elite sports in the universities in Kenya

Research Hypothesis

The following null hypothesis (H_{01}) was designed to address the above objective; implementation of university education academic policies have no significant relationship with students' talent development in elite sports in Kenyan university education.

Literature Review

Integrating academics in university education and students' talent development in elite sports is a rapidly emerging area of research interest. However, the researcher is not aware of a study that has addressed the nexus between university education and students' sports talent development in the universities in Kenya. Extensive studies have been done on the relationship between university education and students talent development in

elite sports in African (Kaves, 2017), American (Rubin and Rosser 2014); Australia (Georgakis et al.,2014); and European member states (Aquilina 2013; Aquilina & Henry 2010; Capranica & Guidotti 2016 ;Henry 2010; Coput-Jogunica et al.,2012). These studies have established that talented students can balance elite sports performances with academics during university education.

The performances in both academic and elite sport is associated with well defined, structured and aligned academic policies; flexible education schedules, and individual student support, including adaptable schedules for lectures and examinations to give room to training and international competitions in elite sports. A study by Capranica and Guidotti (2016) sought to establish policy actions to support the development of students' talents in elite sports through university education among European Union member states. The study cautioned that developing talents in elite sports through university education requires unique competencies that are supported by structured support systems of service delivery.

The study further asserts that integrating university education with sports talent development is a policy domain requiring defined roles and responsibilities in the sports management support systems. In European member states, Capranica and Guidotti (2016) established that France and Spain have state policies that address the status of talented students' access to higher education through state financing, flexible time table (attendance), flexible examination schedules, mentoring, and sports coaching. Rubin and Rosser (2014) carried out a study that investigated the academic admission requirements and performances for talented students in elite sports in American Universities. The study indicated that

talented students are scouted and awarded sports scholarships. However the study noted that to retain such scholarship status, the students must satisfy a prescribed academic progression rate throughout the program of study. Coput-Jogunica et al.,(2012), in a study that analyzed supporting strategies for talented students' in the South East European universities, established that top sport performing European Union member countries and their universities have adjusted entry program requirements for talented students.

They also offer flexible arrangements and support systems for talented students in elite sports who meet the set minimum university admission criteria in respect to academic integrity. To address the issue of recruitment and talent development support system, Aquilina and Henry (2010) found that European member states had different strategies where policy requirements placed demands on universities to provide flexible opportunities for talented students. Kaves (2017) in a survey among the universities in Zimbabwe revealed that a significant number of African universities have a severe shortage of technical and administrative personnel, lack organizational arrangements for both generation and deployment of sports-related revenue, and lack applied research in the field of sports.

In Kenyan context, Kaimenyi and Rintaugu (2011) agree with Kaves (2017) that the challenge experienced by other African universities is similar to the one experienced by universities in Kenya. Kaimenyi and Rintaugu (2011) recommended that African universities should be more innovative on how to strengthen their elite sports programs by borrowing from other successful countries in other parts of the world to ensure that the universities remain more focused, competitive and satisfy the students' sporting needs. Ministry of Education, Science and

Technology (MOEST, 2016) advised that sports, music and drama are talent-related and nurturing activities that are integrated with education curriculum through co-curricular activities in educational institutions in Kenya. The researcher focused on the alignment of university education academic policies with students' talent development in elite sports.

Theoretical framework

The theoretical framework adopted by the study was systems theory. Systems theory approach aimed to bring together the input-process-output strategies with systemic and structural management controls (Clawson, 2014). In systems theory, elements are rationally interconnected towards a shared goal, and the focus is on connections between parts in order to understand how the processes, functions and key outcomes are associated with the processed inputs to produce outputs. The input-process-output are three principle factors that can be dictated and regulated by elite sports and university education management control systems. The approach was based on the creation of input-process-output system applied to university education and sports management support systems to address talent development in elite sports.

Carayannis et al., (2016) assert that a System can be understood as composed of elements tied together by a common navigating rationale to achieve a shared goal. It is constituted by a number of elements and the relationship between these elements and their behavior translate into a whole. Yurtseven and Buchanan (2016), however caution that the system's behavior is determined by the relationship between systems' components and the nature of individual elements. System Theory as a theoretical approach is also used to analyze and understand a phenomenon on the whole perspectives and not simply the

sum of the individual elements (Chikere & Nwoka, 2015; Yurtseven & Buchanan, 2016). Sayin (2016) and Chikere and Nwoka (2015) attempted to explain systems theory in relation to parts that constitute the whole. The studies emphasized that relationships between parts are important than the parts themselves and any reductionist approach conceals the emergent properties as significant features.

Applicable to the study, students and particularly, talented students in the universities, are considered as raw materials that are scouted through university education recruitment and admissions procedures, nurtured and developed in accordance to universities' internal educational and sports management systems, structures and policy guidelines. Access, recruitment, retaining and competition by talented students in elite sports through structured university management academic and talent support systems provide the students with dual career opportunities in elite sports and university education

2.0 Materials and Methods

The target population in the study comprised 24 universities that participated during the national inter-university sports championships in 2015. The study used stratified method to sample nine (9) top performing universities in Rugby, Soccer, Track & Field events, and Volleyball sports during the games championships. The selected games are the category of sports that Kenya has performed well in international competitions, including Olympic Games. They were purposively sampled and considered the category that is best placed to respond to the central phenomena and address the study objective. The respondents were Dean of students (5), Directors of Games and Sports (6), Games Tutors (9), Coaches (15), talented students (381) and

Kenya Universities Sports Association (16) officials.

The central phenomenon in the study was to establish the nexus between university education and students' sports talent development for elite sports in universities in Kenya. The study used both qualitative and quantitative methods in a parallel convergent design in a single study. According to Cresswell (2014), a combination of qualitative and quantitative research method, like the one used in the study, favor mixed methods. The research instruments that were used to collect data during the study were the questionnaire; interview schedules, observations, content analysis and group discussions. Before collecting, clearance was obtained from ethical regulatory agents including NACOSTI and SERC.

The study instruments were piloted in universities that did not participate in Inter-University Championships of 2015. The reliability of the test instruments that were used was established through generating Crobach's alpha coefficient of 0.714, which was used as a reliability index of the research instruments. The piloted instruments were used to collect data. After collecting the data, it was processed, partitioned and accorded attributes, either numerical or descriptive. The response rate was 96.2% (381) of the talented students. Descriptive characteristics are associated to qualitative data that could not be measured numerically. Unlike descriptive attributes or characteristics, the numerical categories refer to quantitative data that was verified statistically.

In this category, the data was classified, grouped and presented in frequencies and percentages. Cross-tabulation of the independent variables (university education academic policies) against the dependent variable (student sports talent development) was done in SPSS statistical software version

22.0. Chi square statistic, Fisher's exact test and Monte Carlo Exact testing were the selected inferential statistics under the cross tabulation. Using these inferential statistics for analysis, the study tested the null hypotheses at alpha level of $p < 0.05$, and significance level of 95% confidence limits, to facilitate generalizations and conclusions.

3.0 Results and Discussion

University Education and Students' Talent Development in Elite Sports

The study investigated how students were recruited into the universities. Results indicated that 61.2% were recruited through Kenya Universities and Colleges Central Placement Services (KUCCPS), previously the Joint Admission Board (JAB); 33.1% made their applications for admission direct to the universities but not based on talent; while only 5.7% were recruited through university request based on talent. An interview with one of the directors established that, those talented students admitted into the universities were those who met the minimum academic admission requirements without any adjustment into the entry program academic qualifications.

The results implied that while talent was considered an added advantage, it was not a policy criterion for admission into the universities in Kenya. This is in contrast to Capranica and Guidotti (2016) who indicated that among the European member countries; France and Spain have state policies that address the needs of elite athletes' access to

higher education through state financing, flexible timetable (attendance), flexible examination schedules, and mentoring and sports coaching. Rubin and Rosser (2014) also confirmed that in American universities, talented students in elite sports have their entry requirement considered and adjusted.

Talented Students

The study sought to establish whether university students in Kenya have the potential to win medals in Olympic Games like their counterparts in Europe or United State of America. 73.75% students indicated "yes", 25.46% students indicated "no". The study also sought to establish from coaches whether university students were recruited into the national teams in Kenya, and responses were 60.0% coaches indicated "yes", while 40.0% coaches indicated "no". This implied that, there were talented students in some universities in Kenya who can be selected to participate in National and International sports competitions.

Investigating the institutions where identification of students' sports talent was done, the results obtained from the study indicated that 34.4% talented students started exploiting their talents through participation in sports competitions at primary school level, while 47.8% talented students participated in sports competitions in secondary schools. Those who started participating in sports competitions at university level were 17.8% students; implying that primary and secondary school levels account for majority of talented students at 82.2% (Table 1).

Table 1

Stage of Competition

Institutional stage	N	%	Total (N)	Total (%)
Primary Schools	131	34.4%	313	82.2%
Secondary Schools	182	47.8%		
Universities	68	17.8%	68	17.8%
Total	381	100.0	381	100.0

Comparable results (Table 3a, 3b, 3c) were obtained when the study sought to determine the entry ages of sports competition. Just like the level of competition, the ages of competition revealed that majority of the students 84.5% participated in sports competitions at primary and secondary school going ages (7-18 years). This justifies the responses from Dean of students 60%, Directors of sports, 100%, Games tutors, 100% and Kenya Universities Sports Association officials 93.7% who apart from

confirming that there were talented students in the universities, they also recommended that talented students be directly recruited from high schools (Table 2) and then be mentored through university education as a strategy to diversify students' talent recruitment in the universities. This is also in line with competency based curriculum that has recommended a talent pillar (5% sports, 5% performing arts and 5% visual arts) that provide direct admission from secondary schools (MOEST, 2017).

Table 2

Recruiting talented students to be directly from High Schools

Respondents	Number (N)	Percent. (%)
Dean of students	3	60.00
Directors/Heads Sports and Games	6	100.00
Games Tutors	9	100.00
Kenya Universities Sports Association (KUSA) Officials	15	93.70

Table 3

Age of competition

a) Primary school equivalent age in Kenya

Ages of competition (Years)	Number (N)	Percentage (%)
7	2	0.5%
9	4	1.0%
10	16	4.2%
11	12	3.1%
12	37	9.7%
13	27	7.1%
14	54	14.2%
Total	152	39.90%

b) Secondary school equivalent age in Kenya

Ages of Competition (Years)	Number (N)	Percentage %
15	50	13.1%
16	54	14.2%
17	34	8.9%
18	32	8.4%
Total	170	44.60%

c) University equivalent age in Kenya

Ages of Competitions (Years)	Number (N)	Percentage (%)
19	17	4.5%
20	16	4.2%
21	9	2.4%
22	5	1.3%
23	5	1.3%
Total	52	13.7%
No response	7	1.8%

This is in agreement with Aquilina (2013) who associated primary and secondary school ages with initiation and development in elite sports, while ages 18-28 years were the mastery stage coinciding with university education. The results in Tables 3.a) and b) clearly indicate that primary and secondary school going ages are crucial in talent identification and nurturing. Ages 7-18 years 84.5% talented students fall within these ages, leaving 13.7% university equivalent age between ages 19-23 years. This also implies that the competency based curriculum (CBC) will strengthen the source of talented students as it embraces the talent pillar in senior secondary education at ages 15-18 years (Table 3.b).

Flexible University Admission Criteria

The researcher sought to establish whether universities needed to revise their students' recruitment policies to accommodate students' talent as part of the admission criteria. 100% Games Tutors agreed and responses from Kenya Universities Sports Association (KUSA) officials on a Likert scale indicated 6.2% disagreed, while 93.8% agreed. The responses from Directors on flexible admission criteria for talented students indicated that 100% agreed. The Dean of students responded on the same item where 80% agreed.

Table 4
Talented Students' Recruitment Policy

Category	Talent as part of admission criteria in the universities
Dean of students	4(80.0%)
Directors	6(100.0%)
Games Tutors	9(100.0%)
KUSA officials	15 (93.8%)

While only a few students were admitted based on the privileges related to talent (5.7%), the responses indicated 100% and 93.8% agreement from games tutors and KUSA officials respectively, that students' recruitment policy in the universities should be revised to consider talent as part of admission criteria. Responses from Directors and Dean of Students indicated 100% and 80% agreement respectively. They recommended flexible admission criteria for talented students into the university education program, implying that the policy on admission criteria need to be revised to consider talent as part of criteria in admitting students into the university education (Table 4 above). To address the objective whether or not a significant relationship exists between university education academic policies and

Table 5

students' sports talent development in elite sports in Kenyan universities, the null hypothesis below was tested at alpha level of $p < 0.05$.

Testing of Hypothesis: The inferential statistical analysis was set to establish the relationship between universities' education academic policies (independent variable) and students' sports talent development (dependent variable). The following null hypothesis was tested at $p < 0.05$;

H₀₁: *the implementation of university academic policies has no significant relationship with students' talent development in elite sports through university education in Kenya*

Chi-Square and Fishers Exact Tests for the Cross Tabulation of University Education Academic Policies and Students' Sports Talent Development in the universities in Kenya

	Value	Df	P-value	Monte Carlo p-value (2-sided)		
				P-value	99% Confidence Interval	
					Lower Bound	Upper Bound
Pearson Chi-Square	97.397 ^a	16	0.000	0.000 ^b	0.000	0.000
Fisher's Exact Test	55.038			0.000 ^b	0.000	0.000
N of Valid Cases	381					

a. 16 cells (64.0%) have expected count less than 5. The minimum expected count is 0.06.

b. Based on 10000 sampled tables with starting seed 2000000.

Table 6

Symmetric Measures for the Cross Tabulation of University Education Academic Policies and Students' Sports Talent Development in the universities in Kenya

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. p-value	Monte Carlo p-values		
					P-value	99% Confidence Interval	
						Lower Bound	Upper Bound
Phi	0.506			0.000	0.000 ^c	0.000	0.000

Nominal by Cramer's Nominal V	0.253			0.000	0.000 ^c	0.000	0.000
Interval by Pearson's Interval R	-0.004	0.050	-0.080	0.936 ^d	0.935 ^c	0.928	0.941
N of Valid Cases	381						

- a. Not assuming the null hypothesis.
- b. Using the asymptotic standard error assuming the null hypothesis.
- c. Based on 10000 sampled tables with starting seed 2000000.

From the results in Table 5, the null hypothesis was rejected, $\chi^2 (16) = 97.397$, $p \leq 0.05$. This revealed that there is strong relationship between university education academic policies and students' sports talent development. The results from Monte Carlo exact testing shows that both Chi-square and Fisher's test had p values less than 0.05 (Exact p = 0.000). In Table 6, Cramer's V was 0.253 (approximately 0.3) which indicates moderate strength of relationship between education academic policies and students' sports talent development. However, Pearson's R in Table 6 was found to be -0.004.

The study determined that the direction of the relationship was negative. Therefore, there is an inverse, moderately strong relationship between university education academic policies and students' sports talent development. The policies over emphasize on academics and not talent development. Based on the results, it is recommended that

there is need for universities in Kenya to reorganize and reposition their education academic policies, sports management structures, and strategies to favor elite sports in the universities before full implementation of sports talent pillar embraced by the competency based curriculum at the university education system.

4.0 Conclusion

The findings of the study established that universities in Kenya do not have well-structured and well-defined policies on talented students' recruitment, flexible admission criteria for talented students, and talent as part of admission criteria. The policies that exist over emphasized academic qualifications and not students' talent development. Education academic policies need to be revised to accommodate students' talent development, and balance academics and elite sports talent.

References

Anold, R., Fletcher, D. & Anderson R. (2015). Leadership and Management in Elite Sport; Factors Perceived to Influence; *International Journal of Science and Coaching*, 10(2), 285-305. <http://10.1260/1747-9541.10.2-3.285>

Aquilina, D. (2013). A study of the relationship between Elite Athletes' Educational Development and Sporting performance *The International Journal of the History of Sport*, 30(4), 374-392. <https://doi.org/10.1080/09523367.2013.765723>

Aquilina, D., & Henry, I. (2010). *Elite athletes and University education in*

- Europe: A review of policy in higher education in the European Union member states.* Routledge.
- Chikere, C. & Nwoka, J. (2015). The Systems Theory of Management in Modern Days organization- A Study of Aldgate Congress Resort limited Port Harcourt; Port Harcourt, *International Journal of Scientific and Research Publications*, 5(9)2250-3153. <http://10.1.1.736.4248>
- Capranica, L., & Guidotti, F. (2016). *Structural and cohesion policies; Qualifications? Dual career in sport: Research for cult committee.* <http://www.europarl.europa.eu/supporting-analysis>.
- Carayannis, E. G., Campbell, D. F. G., & Rehman, S. S. (2016). Mode 3 knowledge production; systems and systems theory, cluster and network. *Journal of Innovation and Entrepreneurship*, 5(17), 1-24. <http://dx.doi.org/10.1186/s13731-016-0045-9>
- Clawson, J., G. (2014). *Systems Theory and Organization Analysis:* Darden Business Publishing.
- Coput-Jogunica, R., Curkovic, S., & Bjelic, G. (2012). Comparative analysis; Support for student-athlete and the guidelines for Universities in South East Europe. *Sports Science*, 5(1), 21-26. <https://bib.irb.hr/datoteka/901776>
- Creswell, J. W. (2014). *Research design; Qualitative, quantitative and mixed methods approaches*, (4th Ed.). Sage publications Inc
- Georgakis, S., Wilson, R. & Ferguson, J. (2014). The Academic Achievement of Elite Athletes at an Australian University: *International Journal of Higher Education*, 3(2)2014, <http://dx.doi.org/10.5430/ijhe.v3n2p120>.
- Henry, I. (2010). *Elite athletes and higher Education; Lifestyle, balance and the management of sporting and educational performance; centre for olympic studies and research.* https://deepcbds.com/wpcontent/uploads/2020/02/Elite_Athletes_and_Higher_Education_Lifestyle_2C_Balance_and_the_Management_of_Sporting_and_Educational_Performance.pdf
- Imbroda-ortiz, J., Castillo-Rodriguez, A. & Chinchilla-Minguet, J. L. (2015). Sports Management, Leadership in the Organizations; *Journal of Physical Education and Sports Management*, 2(2), 56-65 <http://dx.doi.org/10.15640/jpesm.v2n2a5>
- Kaimenyi, J. & Rintaugu, E. G. (2011). *The Nexus of Sports in African Universities.* The proceedings of the Inaugural International Conference of the African Sport Management Association Held between 2nd and 4th December, 2011 at Sports View Hotel, Kampala, Uganda; Africa Sport Management Association (ASMA). <https://ir.library.ku.ac.ke/handle/123456789/13542>.
- Kaves Z., (2017). Challenges in the Management of Sport in the Universities in Zimbabwe; Harare (PhD; Dissertation, University of Zimbabwe).

- <https://lis.204.ai.2w.8080/dspace/bitstream/o/3841>
- MOEST (2016). *Circular for Extra-Curricular Activities for Schools, Colleges and Universities; Jogoo House*; Directorate of Quality Assurance and Standards.
- MOEST (2017). *Basic Education Curriculum Framework*; Institute of Curriculum Development (KICD)
- Rubin, L. M., & Rosser, V. J. (2014). Comparing Division 1A Scholarship and Non-Scholarship Student Athletes: A Discriminant Analysis. *Journal of issues in Intercollegiate Athletics*, 7(4), 43-64.<http://csri-jiia.org>.
- Sayin, H., U. (2016). A Short Introduction to System Theory: Indispensable Postulate System and Basic Structures of the Systems in Quantum Physics, Biology and Neuroscience; *Neuroquantology*; 14 (1), 126-142 <https://doi:10.14704/nq.2016.14.1.855>
- Smoliannov, P., Zakus, D. H. & Gallo, J. (2015): *Sports Development in United States: High Performance and Mass Sports*; Tylor and Francis Group.
- Yurtseven, M. K., & Buchanan, W. W. (2016). Complexity decision making and general systems theory: An Educational Perspective. *Sociology Study*, 6(2), 77-95. <https://doi.org/10.17265/2159-5526/2016.02001>.