

Value Addition on Learners' Talents by Public National, Extra County, County and Sub- County Secondary Schools in Nandi County

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ABSTRACT

Education processes should lead to the cumulative acquisition of knowledge, skills and values needed for holistic development. However, the current assessment practices in the Kenyan education system focus on the cognitive part of learning at the expense of the affective and psychomotor domains. Therefore, the learners' assessment should use approaches that assess value addition to the critical attributes of holistic development. This study examined the value addition of talents by different categories of public secondary schools in Nandi County. The study adopted a mixed research design that used questionnaires and document analysis to collect information from school principals and four students. The study's target population was 192 secondary schools, 192 Principals and 10,499 students. The respondents were stratified into National, Extra- County, County, and Sub- County Schools. The study used proportionate stratified and purposive sampling to select respondents who included 144 principals from 2 National schools, 4 Extra County schools, 26 County schools, and 112 Sub-County schools. Wilcoxon signed-rank test determined the value-added on talents. All the categories of schools added value to volleyball, basketball, athletics, music and drama ($P < .000$). County schools added value to Netball, Extra County did not add value to netball and racket games, and County did not add value to swimming and Sub-County did not add value on swimming and netball. The study recommended that the Ministry of Education should ensure talent development offices in every school are headed by a trained person with the necessary skills to help learners identify and nurture their talents.

Keywords: Value Addition, Talent, Public Secondary Schools

INTRODUCTION

Background of the Study

The Kenyan Government is committed to ensuring all children have access to education. Articles 43(f) and 53(1) (b) of the Constitution of Kenya give the right to education to every child and the right to free and compulsory primary education, respectively. The Basic Education Act (2013) guarantees every child's right to free and compulsory primary education. The Government's commitment is to implement international and regional commitments related to education, such as the Education for All (EFA) and Sustainable Development Goals (SDGs). The Ministry of Education commits to providing and promoting competency-based and equitable learner-centred education, training, and sustainable development research (Government of Kenya, 2012; Marope, 2015; SDG Philanthropy Platform, 2016; UNESCO, 2015a; United Nations Educational Scientific and Cultural Organization, 2018). It is important to note that Kenya's Government continuously invests heavily in the education sector, committing about 5.4% of GDP.

The education philosophy in Kenya focuses on providing holistic quality education and training that promotes education involving cognitive and affective domains. Kenya's education system enlarges learners' knowledge, experiences, fundamental understanding, awareness of moral values and lifelong learning capacity, and holistic education. The school curriculum provides knowledge, skills, competencies, and benefits that enable learners to move seamlessly from the education system into the labour market. Further academic, technical, and vocational education adds value to the education system's acquisition (Ambaa, 2015; Leonard, Kiio, & Mumo, 2018; Milligan, 2017; Mwaka, 2013; Nyamai & Mugambi, 2019; Sömez, 2017; Strand, 2016).

However, there are deviations from the educational philosophy in Kenya depicted by the current school assessment practices. The philosophy's spirit is only achievable by providing quality education and training to the learners by observing the educational standards. There are many quality education indicators, but output indicators have adopted Kenya's most direct measurable schooling outcomes. For example, Kenya measures quality at primary and secondary education levels through standardized KCPE and KCSE tests. At the end of the various cycles, this assessment system, with the limited availability of student places at secondary and higher education levels, dictates the teaching/learning processes towards examinations instead of assessing the attainment of skills and competencies applicable to life. This system has created a society where other education objectives other than the cognitive aspect do not seem to be realized by the prevailing system's products (Agingu, 2018; Akinyi, 2015; Irungu & Grace, 2013; Macketiani, 2017; Mwaka, 2013; Odanga, 2018; Sellah, Jacinta, & Helen, 2018).

Kenya has four categories/levels of public secondary schools: national, extra-County, County, and Sub-County. These schools differ in the teacher-student ratio, infrastructure, facilities, and other resources. Admission into these schools is typically merit-based. The national schools admit learners with the highest marks, followed by Extra County, then County, and the remaining to Sub-County schools.

Furthermore, university admission is also competitive because few spaces exist for those who qualify. This situation has created unhealthy competition for the few places available for KCPE graduates expected to join secondary schools, and the KCSE anticipated graduates to enter the universities. In addition, the primary and secondary schools' teaching processes have become geared towards passing the examination, not skills and competency development. This system has led to unethical practices like cheating, registering weak students privately, and forcing vulnerable learners to repeat classes.

Based on the prevailing practices, there is a need for an alternative method of assessing the education system beyond the current cognitive dimension that is very narrow. There is a necessity for an adequate assessment that considers all the aspects of a learner's holistic development, that is, the cognitive, affective, and psychomotor domains. This study established the current status of learners' holistic development in the mental (academic), talents, and skills in the various categories of public secondary schools (National, Extra-County, County, and Sub-County) in Kenya and suggested an effective method of assessment of education in Kenya.

Objective of the Study

To determine value addition on learners' talents by public National, Extra County, County and Sub County secondary schools in Nandi County.

Research Question

What is the value addition on student talents by public National, Extra County, County and Sub-County secondary schools in Nandi County?

Justification of the study

School ranking based on KCPE and KCSE was abolished in Kenya in 2014 by the Ministry of Education. The debate is ongoing on whether to reintroduce it or not. Due to this controversy and other shortcomings of the ranking system, this study's findings will help provide the baseline data regarding methods that can be most effective and objective in assessing and ranking secondary school graduates in Kenya. An integrated approach would be ideal. Therefore, the evaluation of value-added to learners' holistic development in the various categories of secondary schools in Kenya indicators to determine each school's quality should be adopted.

RESEARCH METHODOLOGY

This study adopted mixed methods research. Data collection tools were both qualitative and quantitative. However, the focus was more quantitative than qualitative (QUANT- QUANT – qual), as qualitative data collection was only tiny. Therefore, data collection tools were quantitative (questionnaires) and qualitative (document analysis).

The study's target population was all 192 public secondary schools in Nandi County with candidates for KCSE in 2018, 192 principals and Form Four students. In terms of categories, the targeted schools were all National (2), Extra County (4), County (28), and Sub-County (158) schools that had had students up to Form Four at the time of the study. It also targeted all the 10449 Form Four students (Boys -6026; Girls 4462); National (Boys- 225; Girls -189); Extra- County (Boys-416, Girls 308); County (Boys-1413, Girls-1046); Sub-County (Boys- 3942, Girls- 2919). The study focused on value-added by various schools; thus, targeted schools had at least presented students for KCSE. The principals are the custodians of school results, and the study focused on the KCPE and KCSE results of 2018 candidates. The study targeted Form Four students because they have been in school for a longer time and actively participated in the various activities of the school, and thus their responses to the questionnaires about talents and life skills would be from an informed point of view.

This study adopted proportionate stratified and simple random sampling and non-probability sampling techniques (purposive). Probability sampling ensures that every item in the population has an equal chance of being included in the sample. It has the most freedom from bias but represents the costliest sample in time and energy for a sampling error level (Cohen et al., 2018; Showkat & Parveen, 2017). Non-probability sampling design (Purposive) applies when the desired number of sample units is selected deliberately or purposely depending upon the inquiry object. It includes only the essential items representing the population's primary characteristics in the sample (Taherdoost, 2017). The study also used Stratified random sampling to stratify schools into four categories, National, Extra-County, County, and Sub- County, and simple random sampling to select a sample of schools. Finally, the principals of the sampled schools were purposively selected to participate in the study.

The researcher used Krejcie and Morgan's (1970) table to identify the sample and confirmed the sample using an inbuilt online calculator (www.calculator.net/sample-size-calculator.htm). The two yielded similar results. Therefore, the study sample consisted of 2 National schools- 1 girl; one boy; 4 Extra – County schools -1 girl, three boys; 27 County schools-14 girls, 13 boys, and 113 Sub-County schools. From the National school 206 students (118 boys, 88 girls); 251 students from Extra- County schools (144 boys, 107 girls); 332 students from County schools (191 boys, 137 girls); and 364 students (209 Boys, 155 Girls) from Sub-County schools.

The research instruments used in the study were questionnaires and document analysis to collect data. The study's various aspects were analysed using the Wilcoxon Signed-Rank test.

Wilcoxon Signed-Rank Test

RESULTS

Value addition to student’s talents by public secondary schools of different categories in Nandi County

Wilcoxon Signed-Rank Test tested the hypotheses at a $P < 0.05$. A P – value less than the stated significant value indicated the dependent sample means were different. If the P -value is higher than the desired level, the mean of the dependent variables is the same. The Wilcoxon Signed-Rank test bases its interpretation on the value of Z . The sign of Z was considered negative or positive. In the case of value addition, if P was less than the stated significant value of 0.05, and a positive Z value, it indicated a significant positive change. Therefore, there was value addition in talents between primary and secondary schools.

On the other hand, suppose P 's value was less than the stated significant value, and the value of Z was negative. This indicated a negative change and, therefore, no value addition to the primary talent by the secondary education system. There was no change if the P -value was higher than the desired level. To determine value addition, the researcher tested the significant difference in participation at primary and secondary schools in various talents, i.e., football, volleyball, basketball, racket games, swimming, athletics, music, drama, and netball. These were done for each school category, i.e., national, Extra County, County, and Sub-County

Value addition on football by public National, Extra County, County, and Sub-County Public National Secondary Schools in Nandi County

Table 1: Test statistic- Football for National, Extra County, County, and Sub-County Public Secondary Schools

School category	Z	Asymp. sig (2-tailed)	Median primary	Median secondary
National	-.689	.491	2.00	2.00
Extra County	- 1.285	.199	2.00	2.00
County	- 4.194	.000	1.00	2 .00
Sub-County	-1.583	.113	2.00	1.00

Source: Field data (2018)

Table 2: Wilcoxon Rank – Football for National, Extra County, County, and Sub-County schools

School category	VAR2 –VAR1	Rank	N	Mean rank	Sum of ranks
National	Football secondary –	Negative Ranks	22 ^b	57.59	1267.00
		Positive Ranks	52 ^c		
	Football primary	Ties	132 ^d	29.00	1508.00
		Total	206		
Extra County	Football secondary –	Negative Ranks	73 ^b	75.19	2406.00
		Positive Ranks	32 ^c		
	Football primary	Ties	146 ^d	43.27	3159.00
		Total	251		

County	Football secondary-	Negative Ranks	62 ^b	96.21	59.65
		Positive Ranks	126 ^c		
	Football primary	Ties	144 ^d	93.66	11801
		Total	332		
Sub-County	Football secondary –	Negative Ranks	56 ^b	66.85	3743.50
		Positive Ranks	57 ^c		
	Football Primary	Ties	251 ^d	47.32	2679.50
		Total	364		

a school category

b football secondary < Football primary

c football secondary > Football primary

d football secondary = Football primary

A Wilcoxon signed-rank test revealed no significant change between football participation in secondary compared to participation in primary by National schools. $Z = -.689$, $P = .491$, median primary = 2, median secondary = 2, negative ranks (52) and positive ranks (22). These results show that participation in football in primary and secondary was not significant. Therefore, there was no value addition by National secondary schools on football. A Wilcoxon signed-rank test for Extra – County schools showed no significant difference in football participation in primary and secondary school levels, $Z = -1.285$, $P = .199$, negative ranks (73), positive ranks (32). The median for both primary and secondary schools' football participation was 2.00. The results showed no value addition in football by different Extra-County schools, so the null hypothesis was accepted (Table 4.24). Wilcoxon signed-rank test results for County schools indicated a significant difference, $Z = -4.194$, $P = .000$, negative ranks (62) positive ranks (126). The median score for the primary was 1.00, and secondary football participation was 2.00, showing that most students at primary participated up to the Sub-County level. Therefore, there was a significant change in performance between primary and secondary school participation ($P = .000$). The null hypothesis is rejected because $P (.000)$ was less than .05. This shows that County schools added value to student participation in football.

Sub-County secondary schools showed no significant participation in football at the secondary level. Compared to primary $Z = 1.583$, $P = .113$, negative ranks (56), and positive (57), the Median of football involvement at the primary level was 2.00 compared to 1.00 at the secondary level. The median of 2 showed that most students at primary school participated up to the Sub-County level. In contrast, the median of 1 at secondary school showed that most learners did not participate in football beyond the primary school level. The null hypothesis was accepted because $P (.113)$ was higher than .05. Therefore, there was no value addition by public Sub-County secondary schools.

Therefore, national schools did not add value on student participation in football, $Z = -.689$, $P = .491$, mean ranks; positive (22), negative (52); Median, primary (2.00), secondary (2.00). Extra County secondary schools did not add value to student participation in football; $Z = -1.285$, $P = .199$, ranks; positive (22), negative (52). County schools added value to student participation in football ($Z = -4.194$, $P = .000$). Sub-County schools did not add value to student participation in volleyball. $Z = -1.583$, $P = .113$, Median; Primary (2.00), secondary (1.00), ranks; positive (57), negative (56).

In conclusion, County schools added value to football participation, whereas National, Extra- County, County, and Sub-County did not add value. Therefore, national schools, Extra- country and Sub-County schools should put measures in place to encourage the participation of students in football. Kenyan secondary schools have produced some of the world’s best footballers, the likes of ex-Harambee Stars striker Dennis Oliech and midfielder McDonald Mariga were products of Kamukunji High School-then, famously known as the ‘Golden Boys’. However, whereas some of these talented players play professionally after completing their o-levels, a considerable number gave up because of a lack of structures to nurture their talents. These results agree with the study that school policies toward students’ participation in co-curricular activities are somewhat ambivalent (Muthike, Mwaruvie, & Mbugua, 2017).

Globally, some countries have realized the importance of co-curriculum, which has enhanced the review of their education system to ensure early identification of their students’ talents. These have facilitated an excellent environment for tapping, nurturing, and developing skills from a tender age. This Endeavour has borne fruits through producing a mass pool of sports personalities, thus developing careers for thousands of citizens. A classic example is Brazil which has produced many renowned professional footballers, playing their trade across elite European clubs. They earn their country’s foreign exchange through monies repatriated back to their County (Michael, 2012). In Kenya, education plays a crucial role in determining one’s vocation. Therefore, schools should move away from focusing on academics to nurture student talents for a lifelong learning approach. This will encourage them to get employment outside the education system (Michael, 2012; Muthike et al., 2017).

Value addition on volleyball participation by Public National Secondary Schools in Nandi County

Table 3: Test statistic– Volleyball for National, Extra County, County, and Sub-County public secondary Schools

School category	Z	Asymp. sig (2-tailed)	Median primary	Median secondary
National	- 7.061	.000	1.00	2.00
Extra County	- 8.638	.000	1.00	2.00
County	- 7.512	.000	1.00	2.00
Sub-County	- 6.195	.000	1.00	2.00

Table 4: Wilcoxon Rank – Volleyball for National, Extra County, County, and Sub-County public secondary schools

School category	VAR2 –VAR1	Rank	N	Mean rank	Sum of ranks
National	Volleyball secondary –	Negative Ranks	6 ^b		
		Positive Ranks	72 ^c	41.50	249.00
	Volleyball primary	Ties	128 ^d	39.33	2832.00
		Total	206		
Extra County	Volleyball secondary –	Negative Ranks	7 ^b		
		Positive Ranks	105 ^c	50.36	352.50
	Volleyball primary	Ties	139 ^d	56.91	5975.50
		Total	251		
County	Volleyball secondary-	Negative Ranks	35 ^b		
		Positive Ranks	135 ^c	77.71	2720
	Volleyball primary	Ties	162 ^d	87.52	11815
		Total	332		
Sub-County	Volleyball secondary –	Negative Ranks	28 ^b		
		Positive Ranks	114 ^c	78.32	2193.00
	Volleyball Primary	Ties	222 ^d	69.82	7960.00
		Total	364		

a school category

b Volleyball secondary < volleyball primary

c Volleyball secondary > Volleyball primary

d Volleyball secondary = Volleyball primary

National school’s results indicated a significant difference between participation in volleyball in primary and secondary, $Z = -7.061$, $P = .000$, Median; primary (1.00), secondary (2.00), ranks; negative (6), Positive (72) (Table 4.26). The positive ranks showed more participation in secondary school than primary school, as $P (.000)$ is less than the critical value of .05. Therefore, the rejection of the null hypothesis. There was a significant change in volleyball participation from primary to secondary schools. Therefore, national schools added value to student participation in volleyball.

There was a significant difference in primary volleyball participation for Extra County schools compared to involvement in the secondary level, $Z = -8.638$, $P = .000$, median; primary (1.00), secondary (2.00), ranks; negative (7) and positive (105). The median showed that most of the students at primary did not participate beyond the school level, whereas secondary levels participated up to the Sub-County levels. The difference in participation was significant at $P = .000$ (Table 4.26). The significant P value showed that Extra- County schools added value to volleyball participation, thus rejecting the null hypothesis.

Wilcoxon signed-rank test results for County schools indicated a significant difference. $Z = -7.512$, $P = .000$, median; Primary (1.00), secondary (1.00), ranks; negative (35), positive (135), The Median of 1, at primary and 2 at secondary showed that a majority of students at the secondary level participated in volleyball up to the Sub-County level. In contrast, most did not participate beyond the school level at primary. There was a significant change, $P = .000$. This meant that County schools added value to volleyball participation. Sub-County secondary schools showed a significant change in participation in volleyball in secondary compared to primary. $Z = -6.195$, $P = .000$, Median; Primary (1.00), secondary (2.00), ranks; negative (28), positive (114). The median for primary (1.00) showed that most pupils did not participate in volleyball beyond the school level. Simultaneously, the median (2) for secondary indicated that most students participated up to the Sub-County level. A $P (.000)$ is less than .05, and therefore, there was value addition by Sub-County schools on volleyball. Thus, the rejection of the null hypothesis.

In summary, National schools added value on volleyball, $Z = -7.061$, $P = .000$ ranks; positive (72), negative (6); Media, primary (1.00), secondary (2.00). Extra County secondary schools added value; $Z = -8.638$, $P = .000$, ranks; positive (105), negative (7). County schools added value to volleyball ($Z = -7.512$, $P = .000$). Sub-County schools also added value to student participation in volleyball. $Z = -6.195$, $P = .000$, Median; Primary (1.00), secondary (2.00), ranks; positive (114), negative (28).

All four categories of schools added value to student participation in volleyball. These results agree that Nandi County schools have done well in volleyball, especially Cheptil boys and girls. Non-academic talents are recognized worldwide as relevant ingredients of quality education, which goes a long way in nurturing a healthy and economically viable society. Implementing any educational program requires resources and materials that are critical to learning. No meaningful teaching and learning, a component of curriculum implementation, takes place without adequate resource materials (Isaac, Kimengi, Kiptala, & Okero, 2014; Ndirangu, 2015). Therefore, schools should increase their resource allocation to support students develop this talent

Value addition to student’s participation in Basketball by Public National, Extra County, County, and Sub-County secondary schools in Nandi County

Table 5: Test statistic – Basketball for National, Extra County, County, and Sub-County public Secondary Schools

School category	Z	Asymp. sig (2-tailed)	Median primary	Median secondary
National	-5.281	.000	1	2
Extra County	-4.558	.000	1	2
County	-5.408	.000	1	2
Sub-County	-7.286	.000	1	2

Table 6: Wilcoxon Rank-Basketball for National, Extra- County, County, and Sub-County schools

School category	VAR2 –VAR1	Rank	N	Mean rank	Sum of ranks
National	Basketball secondary – Basketball primary	Negative Ranks	1 ^b		
		Positive Ranks	36 ^c	9.00	9.00
		Ties	169 ^d	19.28	694.00
		Total	206		
Extra County	Basketball secondary – Basketball primary	Negative Ranks	3 ^b		
		Positive Ranks	37 ^c	20.01	79.50
		Ties	211 ^d	26.50	3575.50
		Total	251		
County	Basketball secondary-basketball primary	Negative Ranks	10 ^b		
		Positive Ranks	76 ^c	40.59	656.50
		Ties	246 ^d	66.65	11815
		Total	332		
Sub-County	Basketball secondary – Basketball Primary	Negative Ranks	7 ^b		
		Positive Ranks	80 ^c	36.74	253.50
		Ranks	277 ^d	44.69	3575.00
		Ties	364		
Total					

a school category

b Basketball secondary < Basketball primary

c Basketball secondary > Basketball primary

d Basketball secondary = Basketball primary

A Wilcoxon signed-rank results for the National schools' basketball showed a significant difference, $Z = -5.281$, $P = .000$, median; primary =1, secondary =2, ranks; negative = 1, positive =36. There was a significant positive change in the secondary level participation in Basketball. The $P (.000)$ value is less than .05; therefore, there was a value addition to Basketball by National schools, thus rejecting the null hypothesis. A Wilcoxon signed-rank results for Extra-County showed a significant difference, $Z = -4.558$, $P = .000$, median; primary (1.00), secondary (2.00), positive ranks (37) was higher than the negative ranks (3). This implies that most students participated more in basketball at the secondary level (Table 4.28). Therefore, $P = .000$ leads to the rejection of the null hypothesis, showing that Extra – County schools added value to students in basketball.

A Wilcoxon signed-rank results for County secondary schools showed a significant difference, $Z = -5.408$, $P = .000$, median; primary (1.00), secondary (2.00). The positive rank (76) was higher than the negative (10), which showed that most students participated in basketball at the secondary level. Therefore, there was a significant change ($P = .000$) in basketball, thus value addition. A Wilcoxon signed-rank test for Sub-County schools elicited significant results, $Z = -7.286$, $P = .000$, median; primary (1.00), Secondary (2.00), ranks; negative (7), positive (80). There was a significant positive change in basketball participation $P (.000)$, leading to the rejection of the null hypothesis. Sub-County schools, therefore, added value to student participation in basketball.

Therefore, National, Extra- County, and Sub-County schools added value to student participation in basketball. National; $Z = -5.281$, $P = .000$, median; primary =1, secondary =2, ranks; positive =36, negative = 1. National schools added value. Extra-County; $Z = -4.558$, $P = .000$, median; primary (1.00), secondary (2.00), positive ranks (37) were higher than the negative ranks (3). Extra -County schools added value to basketball participation. County; $Z = -5.408$, $P = .000$, median; primary (1.00), secondary (1.00). The positive ranks (76) were higher than the negative ranks (10). County schools added value to basketball participation. Sub-County; $Z = -7.286$, $P = .000$, median; primary (1.00), Secondary, (2.00), ranks; positive (80), negative (70). There was value addition by Sub-County schools on basketball.

All the categories of schools added value to student participation in basketball. These results show that basketball is one of the talents schools should encourage by allocating adequate resources and enforcing the participation of all the students. There was value addition in basketball in all the school categories in Nandi County, but the participants were few. These findings agree with studies that reported that co-curricular activities provide young people with the opportunity for exemplary academic performance and personal development. In co-curricular activities, young people capture the chance for satisfaction, self-development, emotional management, and leadership. Through involvement in co-extra-curricular activities, young people become effective coaches and mentors later on. Students' participation in co-curricular activities is vital in creating a culture of active involvement, loyalty, and pride to the institution and in pursuing academic success and personal development that mirror the extent of cognitive, affective and psychomotor learning domains. The success of such endeavours requires human and financial resources support to coach, train, and provides the necessary facilities (Danganan et al., 2015) (Luttah Waseka & M.W. Simatwa, 2016; NCPD, 2017; Ndirangu, 2015)

Value addition to student's participation in Racket games by Public National, Extra County, County, and Sub-County secondary schools in Nandi County

Table 6: Test statistic – Racket games for National, Extra County, County, and Sub-County public secondary Schools

School category	Z	Asp. sig (2-tailed)	Median primary	Median secondary
National	- 5.129	.000	1.000	2.000
Extra County	- 2.366	.018	1.000	2.000
County	- 4.692	.000	1.000	2.000
Sub-County	- 6.771	.000	1.000	2.000

Source: Field data (2018)

Table 7: Wilcoxon Rank – Racket games for National, Extra County, County, and Sub-County public secondary Schools

School category	VAR2 –VAR1	Rank	N	Mean rank	Sum of ranks
National	Racket games secondary – Racket games primary	Negative Ranks	2 ^b		
		Positive Ranks	35 ^c	14.00	28.00
		Ties	169 ^d	19.09	675.00
		Total	206		
Extra County	Racket games secondary – Racket games primary	Negative Ranks	6 ^b		
		Positive Ranks	24 ^c	14.35	120.50
		Ties	221 ^d	20.08	344.50
		Total	251		
County	Racket games secondary – Racket games primary	Negative Ranks	2 ^b		
		Positive Ranks	30 ^c	10.50	21.00
		Ties	300 ^d	16.90	507.00
		Total	332		

Sub-County	Racket games secondary –	Negative Ranks	6 ^b	34.50	207.00
		Positive Ranks	71 ^c		
	Racket games Primary	Negative Ranks	287 ^d	39.38	2796.00
		Ties	364		
		Total			

a school category

b Racket games secondary < Racket games primary

c Racket games secondary > Racket games primary

d Racket games secondary = Racket games primary

The results of the Wilcoxon signed-rank test indicated a significant difference, $Z = -5.129$, $P = .000$. Median; primary (1.00), secondary (1.00). The mean of the positive ranks (19.29) was higher than the negative ranks (14.00), a significant positive change ($P = .000$), indicating value addition to National schools' racket games participation and, the rejection of the null hypothesis.

The Wilcoxon signed-rank test results for Extra – County schools indicated a significant difference, $Z = -2.366$, $P = .018$, median; primary (1.00), secondary (2.00). The positive mean rank (20.08) was greater than the negative mean rank (14.08), showing there was a significant change. These results, therefore, show that there was value addition by Extra–County on racket games participation.

The Wilcoxon signed-rank test results for County schools indicated a significant difference, $Z = -4.693$, $P = .000$, Median; primary (1.00), secondary (2.00). The positive mean rank (16.90) was higher than the negative rank (10.50). These results, therefore, indicate that there was value addition by public County secondary schools in racket games leading to the rejection of the null hypothesis. A Wilcoxon signed-rank results Sub-County secondary schools showed a significant difference, $Z = -6.711$ $P = .000$. The median; was primary (1.00) and secondary (2.00). The mean of the positive ranks (39.38) was higher than the negative ranks (34.50). These results showed that Public sub-County secondary schools added value to students in racket games. Hence, a rejection of the null hypothesis.

In summary, National schools added value to racket games participation, $Z = -5.129$, $P = .000$. Median; primary (1.00), secondary (2.00), mean ranks; positive (19.29), Negative (14.00). Extra County schools added value to students' participation in racket games. $Z = -2.366$, $P = .018$, median; primary (1.00), secondary (2.00), mean ranks; positive (20.08), negative (14.35). County schools added value to the student in racket games, $Z = -4.693$, $P = .000$, median; primary (1.00), secondary (2.00). Mean ranks; positive (16.90), negative (10.50).

Sub-County schools added value to racket games participation. $Z = -6.711$ $P = .000$, median: primary (1.00), secondary (1.00), mean ranks; positive (39.38), negative (34.50). Participation in sports generally benefits students in secondary schools by making them physically fit and healthy. Competitive sports promote unity among students from different schools. Participation in sports also leads to connectedness to school. This

protects students against violence, risky sexual behaviour, and drug abuse and controls the school dropout rate. Similarly, Mandox and Prinz (2003) noted that students who are more connected to school experience positive life outcomes and have lower rates of delinquency, drug abuse, and school dropout. Properly connected individuals can get involved in positive activities in and outside of schooltime (Kamau, 2015; Myers et al., 2013)

Value addition to student’s participation in Swimming by Public National, Extra County, County, and Sub-County secondary schools in Nandi County

Table 8: Test statistic – Swimming for National, Extra County, County, and Sub-County public secondary Schools

School category	Z	Asp. sig (2-tailed)	Median primary	Median secondary
National	-11.606	.000	2.00	4.00
Extra County	-6.140	.000	1.00	2.00
County	-1.778	.075	1.00	1.00
Sub-County	-.857	.391	1.00	1.00

Table 9: Wilcoxon Rank – Swimming for National, Extra County, County, and Sub-County public secondary Schools

School category	VAR2 – VAR1	Rank	N	Mean rank	Sum of ranks
National	Swimming secondary – Swimming primary	Negative Ranks	1 ^b		
		Positive Ranks	175 ^c	154.50	154.50
		Ties	30 ^d	88.12	15421.50
		Total	205		
Extra County	Swimming secondary – Swimming primary	Negative Ranks	4 ^b		
		Positive Ranks	61 ^c	38.00	152.00
		Ties	186 ^d	32.67	1993.00
		Total	251		
County	Swimming secondary – Swimming primary	Negative Ranks	7 ^b		
		Positive Ranks	27 ^c	27.93	195.50
		Ties	298	14.80	399.50
		Total	332 ^d		

Sub-County	swimming secondary – Swimming Primary	Negative Ranks	2 ^b		
		Positive Ranks	5 ^c	4.50	9.00
		Ties	357 d	3.80	19.00
		Total	364		

a school category

b swimming secondary < swimming games primary

c swimming secondary > swimming primary

d swimming secondary = swimming primary

A Wilcoxon signed-rank test results for national secondary schools showed a significant difference, $Z = -11.606$, $P = .000$, median; primary (2.00), secondary (4.00), ranks; positive (175), negative (1) mean ranks; positive (88.12), negative (154.50). The median showed that most students at the primary level participated up to the Sub-County level. Most of the participants went up to the regional level at the secondary level. Given that $P (.000)$ is less than .05, there was value-addition by national schools, so the null hypothesis is rejected (Table 4.31).

A Wilcoxon signed-rank results for Extra County schools showed a significant $Z = -6.140$, $P = .000$, median; primary (1.00), secondary (1), ranks; positive (61), negative (4) mean ranks; positive (32.7), negative (38.00). A $P = .000$ was less than .05, showing a significant change in participation, and therefore the null hypothesis is rejected (Table 4.32). Extra-County schools added value to student participation in swimming. A Wilcoxon signed-rank results for County schools showed no significant difference, $Z = -1.778$, $P = .075$, median primary (1.00), secondary (1.00), ranks; positive (27), negative (7), mean ranks; negative (27.93) was greater than positive (14.80). The P -value (.075) was greater than the significant value (.05), leading to the acceptance of the null hypothesis. There was no value addition by County schools. A Wilcoxon signed-rank results for Sub-County schools showed no significant difference, $Z = -.857$, $P = .391$, median; primary (1.00), secondary (1.00), mean ranks; negative (4.50), positive (3.80). The P -value (.391) was greater than the critical value (.05), showing no significant change and no value addition. The null hypothesis was accepted.

Therefore, National schools added value to student participation in swimming $Z = -11.606$, $P = .000$, median; primary (2.00), secondary (4.00), ranks; positive (175), negative (1), mean ranks; positive (154.50), negative (88.12), There was value addition on swimming by Extra County schools. $Z = -6.140$, $P = .000$, median; primary (1.00), secondary (2), ranks; positive (61), negative (4), mean ranks; positive (32.68), negative (38.00).

County schools; no value addition on swimming. $Z = -1.778$, $P = .075$, median primary (1.00), secondary (1.00), ranks; positive (27), negative (7), mean ranks; positive (14.80), negative (27.93). Sub-County; there was no value addition by Sub-County public secondary school., $Z = -.857$, $P = .391$, median; primary (1.00), secondary (1.00), ranks; positive (5), negative (2), mean ranks; negative (4.50), positive (3.80). National and Extra County schools added value to student participation in swimming, whereas County and Sub-County schools did not add value.

Value addition to students’ participation in Athletics by Public National, Extra County, County, and Sub-County secondary schools in Nandi County

Table 10: Test statistic– Athletics for National, Extra County, County, and Sub-County public secondary Schools

School category	Z	Asymp. sig (2-tailed)	Median Primary	Median secondary
National	-6.692	.000	1	2
Extra County	-9.442	.000	2	3
County	-9.7340	.000	1	2
Sub-County	-10.956	.000	2	3

Table 11: Wilcoxon Rank – Athletics for National, Extra County, County, and Sub-County public Secondary Schools

School category	VAR2 –VAR1	Rank	N	Mean rank	Sum of ranks
National	Athletics secondary – Athletics primary	Negative Ranks	9 ^b		
		Positive Ranks	72 ^c	40.32	362.00
		Ties	125 ^d	41.10	2959.00
		Total	205		
Extra County	Athletics secondary – Athletics primary	Negative Ranks	7 ^b		
		Positive Ranks	118 ^c	50.00	350.00
		Ties	126 ^d	63.77	75725.00
		Total	251		
County	Athletics secondary – Athletics primary	Negative Ranks	9 ^b		
		Positive Ranks	139 ^c	82.44	742
		Ties	184 ^d	73.99	10284.00
		Total	332		
Sub-County	Athletics secondary – Athletics Primary	Negative Ranks	9 ^b		
		Positive Ranks	169 ^c	109.06	981.50
		Ties	186 ^d	88.46	14949.50
		Total	364		

a school category

b Athletics secondary < Athletics primary

c Athletics secondary > Athletics primary

d Athletics secondary = Athletics primary

A Wilcoxon signed-rank test for National schools showed that participation in athletics was significantly different between secondary (median =2.00) and primary (median =1.00), $Z = -6.692$, $P = .000$, ranks; positive (72), negative (7), Mean ranks; positive (41.10), negative (40.32). There was a significant change, thus value addition and rejection of the null hypothesis. A Wilcoxon signed-rank test showed a significant difference; $Z = -3.926$, $P = .000$, median; Primary (2), secondary (3); ranks; positive (118), negative (7); mean ranks; positive (63.8), negative (50). The results showed a significant ($P = .000$) participation in athletics by secondary students compared to primary participation. A median of 2 in primary shows that most students participated at the County level, whereas a median of 3 in secondary shows that most students participated at the regional level. Therefore, there was value addition and thus a rejection of the null hypothesis.

Wilcoxon signed-rank test results for County schools showed a significant difference, $P = .000$, $Z = -9.7340$, median; primary (1.00), secondary (2.00), ranks; positive (139), negative (9), mean ranks; positive (73.99), negative (82.44). A median of 1 at primary and 2 at secondary showed that most students at the primary level participated up to the Sub-County level. In contrast, most secondary students participated up to the County level. Thus, there was value added, hence the rejection of the null hypothesis.

A Wilcoxon signed test for Sub-County schools showed that participation in athletics at the secondary level elicited a statistically significant change, $Z = -10.856$, $P = .000$. Median; primary (2), secondary (3), ranks; positive (169), negative (9), mean ranks; positive (88.46), negative (109.66). There is a significant difference ($P = .000$) in performance between participation in secondary and primary. The median for the primary was 2.00, whereas the median for secondary school participation was 3.00. The median shows that most students at the secondary level participated up to County-level compared to Sub-County level at primary. There was value addition and thus a rejection of the null hypothesis.

In summary, National schools added value to athletics. Median; primary (1.00), secondary (2), $Z = -6.692$, $P = .000$, ranks; positive (72), negative (9), Mean ranks; positive (41.10), negative (40.32). There was value addition by Extra- County schools, $P = .000$, $Z = 9.7340$, median; primary (1.00), secondary (2.00), ranks; positive (118), negative (7) mean ranks; positive (73.99), negative (82.44). County schools; County schools added value to student participation in athletics. $Z = -9.442$, $P = .000$, Median; primary (1.00), secondary (2.00), ranks; positive (139), negative (9), mean rank; negative (82.44), positive (73.99). Sub-County schools added value on participation in athletics, $Z = -10.856$, $P = .000$, median; primary (2), secondary (3), ranks; positive (169), negative (9), mean ranks; negative (109.06), positive (88.46). All the categories of schools added value to student participation in athletics.

Value addition to student participation in Music by Public National, Extra County, County, and Sub-County secondary schools in Nandi County

Table 12: Test statistic – Music for National, Extra County, County, and Sub-County public Secondary Schools

School category	Z	Asymp. sig (2-tailed)	Median primary	Median secondary
National	-7.146	.000	1	3
Extra County	-10.078	.000	1	4
County	-5.681	.000	1	2
Sub-County	-7.327	.000	2	3

Table 13: Wilcoxon Rank –Music for National, Extra County, County, and Sub-County public secondary Schools

School category	VAR2 –VAR1	Rank	N	Mean rank	Sum of ranks
National	Music secondary – Music primary	Negative Ranks	11 ^b		
		Positive Ranks	102 ^c	69.68	766.50
		Ties	93 ^d	55.63	5674.50
		Total	206		
Extra County	Music secondary – Music primary	Negative Ranks	6 ^b		
		Positive Ranks	146 ^c	72.50	435.00
		Ties	99 ^d	76.66	11.193.00
		Total	251		
County	Music secondary – Music primary	Negative Ranks	39 ^b		
		Positive Ranks	126 ^c	87.68	3419.50
		Ties	167 ^d	81.55	10275.50
		Total	332		
Sub-County	Music secondary – Music I Primary	Negative Ranks	36 ^b		
		Positive Ranks	147 ^c	90.54	3259.50
		Ties	181 ^d	92.36	13576.50
		Total	364		

1. School category
2. Music secondary < Music primary
3. music secondary > Music primary
4. music secondary = Music primary

A Wilcoxon signed-rank results for National schools showed a significant difference, $Z = -7.146$, $P = .000$, median; primary (1.00), secondary (3.00), ranks: positive (102), negative (11), Mean ranks: negative(69.68), positive (55.63). The results showed that most students participated in music at secondary up to County-level compared to a majority who did not participate at the primary level. Public National secondary schools added value to student participation in music. A Wilcoxon signed-rank test results for Extra –County schools showed a significant difference, $Z = -10.078$, $P = .000$, median; primary (1.00), secondary(2.00), ranks; positive (146); negative (6), mean ranks; positive (76.66), negative (72.50). These results indicated that most of the students at the secondary participated in music up to the Sub-County level compared to the majority’s non-participation at the primary level. $P = .000$ indicates that there was a significant difference between participation in primary and secondary school participation. Therefore, there was value addition on music by Extra-County schools, thus rejecting the null hypothesis.

A Wilcoxon signed-rank tests results for County schools showed a significant difference, $Z = -5.681$, $P = .000$, median; primary (1.00), secondary (2.00), ranks; positive (126), negative (39), mean ranks; negative (87.68), positive mean rank (81.55). A $P = .000$ indicates that the difference between primary and secondary school participation was significant. A median of 1 at primary shows that most students participated in music up to the Sub-County level whereas at the secondary level most students participated to the County level. These results, therefore, showed that County schools added value to students' participation in music. A Wilcoxon signed test for Sub-County schools showed that music participation at the secondary level elicited a statistically significant change, $Z = -10.856$, $P = .000$, median; primary (2.00), secondary (3.00). Ranks; positive (147), negative (36), mean ranks; positive (92.36), negative (90.54). These showed that most students in secondary participated up to County-level compared to Sub-County level at primary. There was value addition leading to the rejection of the null hypothesis.

Therefore, National schools added value to student participation in music, $Z = -7.146$, $P = .000$, median; primary (1.00), secondary (3.00), ranks; positive (102), negative (11), Mean ranks; negative (69.68), positive (55.63). In Extra County schools, there was value addition by this category of schools, $Z = -10.078$, $P = .000$, median; primary (1.00), secondary (2.00). Ranks: positive (146), negative (11), mean rank; negative (72.50), positive (81.55). County schools: added value to student participation in music. $Z = -5.681$, $P = .000$, median; primary (1.00), secondary (2.00), ranks; positive (126), negative (39), mean rank: negative (87.68), positive (81.55).

Sub-County schools: There was value addition by this category of schools on student participation in music. $Z = -10.856$, $P = .000$, median; primary (2.00), secondary (3.00), ranks; positive (147), negative (36), mean rank (negative 90.54), positive (92.36).

All the categories of schools added value to participation in music. This shows that it is widespread and can create alternative pathways for students. The availability of facilities and materials for use in co-curricular activities does not only encourage students to get involved in the activities but also encourages teachers too. For example, co-curricular activities in Kenyan secondary schools are not well developed. The government's responsibility is to provide funds for co-curricular-related materials. Inadequate sporting materials hinder many students from being involved in co-curricular activities; in the end, they give up if the government cannot provide adequate materials with the burden of provision of the same is shifted to the parents (Abagi, Odipo, & House, 1997; Isaac et al., 2014; Ngeti, Bulinda, & Peter, 2018; Wu, 2000).

Value addition to student's participation in Drama by Public National, Extra County, County, and Sub-County secondary schools in Nandi County

Table 14: Test statistic – Drama for National, Extra County, County, and Sub-County public secondary Schools

School category	Z	Asymp. Sig (2-tailed)	Median primary	Median secondary
National	-2.628	.009	1	2
Extra County	-6.379	.000	1	2
County	-4.542	.000	1	2
Sub-County	-5.866	.000	1	2

Table 15: Wilcoxon Rank – Drama for National, Extra County, County, and Sub-County public Secondary Schools

School category	VAR2 –VAR1	Rank	N	Mean rank	Sum of ranks
National	Drama secondary – Drama primary	Negative Ranks	12 ^b		
		Positive Ranks	29 ^c	19.42	23300
		Ties	165 ^d	21.66	628.00
		Total	205		
Extra County	Drama secondary – Drama primary	Negative Ranks	4 ^b		
		Positive Ranks	71 ^c	56.88	227.50
		Ties	176 ^d	36.94	2622.50
		Total	251		
County	Drama secondary – Drama primary	Negative Ranks	21 ^b		
		Positive Ranks	85 ^c	67.21	1411.50
		Ties	226 ^d	50.11	4259.50
		Total	332		
Sub-County	Drama secondary – Drama Primary	Negative Ranks	18 ^b		
		Positive Ranks	90 ^c	58.47	1052.50
		Ties	256 ^d	53.71	4833.50
		Total	364		

a school category

b Drama secondary < Drama primary

c Drama secondary > Drama primary

d Drama secondary = Drama primary

The Wilcoxon signed-rank test results for national schools indicated a significant positive difference, $Z = -2.628$, $P = .009$. Ranks; positive (29), negative (12), Mean ranks; positive (21.66), negative (19.42), median; primary (1), secondary (2). The significant P value (.009) was less than the significant value (.05), thus rejecting the null hypothesis. There was a value – addition to student participation in drama. The Wilcoxon signed-rank test Extra-County schools’ results indicated a significant difference, $Z = -6.379$, $P = .000$, median; primary (1.00), secondary (2), ranks; positive (71), negative (4), Mean ranks; negative rank (56.88), positive ranks (36.94). These results, therefore, showed that Extra-County public secondary schools in Nandi County added value to student participation in drama. Thus, the null hypothesis is rejected. The

Wilcoxon signed-rank test results for County schools indicated a significant difference, $Z = -3.584$, $P = .000$, median primary (1), secondary (2), ranks; positive (85), negative (21), mean ranks; negative mean rank (67.21), positive mean rank (50.11). Given that $P = .000$ is less than the significant value (.05), County schools added to student participation in drama. Wilcoxon signed-rank test for Sub-County schools indicated a significant difference, $Z = -5.866$, $P = .000$, median; primary (1), secondary (2), ranks; positive (90), negative (18), mean ranks; positive (53.71), negative (58.47). These results showed a significant change favouring involvement at the secondary level and hence value addition and rejection of the null hypothesis.

Therefore, National schools added value to student participation in Drama, $Z = -2.628$, $P = .009$, $P = .009$, median; primary (1.00), secondary (2.00), ranks; positive (29), negative (12), mean ranks; negative (19.42), positive (21.66). Extra – County schools added value in Drama, $Z = -6.379$, $P = .000$, median; primary (1.00), secondary (.000), ranks; positive (71), negative (4), mean ranks; negative (56.88), positive (36.94). County schools: There was value addition, by County schools. $Z = -3.584$, $P = .000$, median; primary (1.00), secondary (2.00), ranks; positive (85), negative (21), mean ranks; negative (67.21), positive (50.11). Sub-County: Sub-County schools added value on student participation in Drama. $Z = -5.866$, $P = .000$, median; primary (1.00), secondary (2.00), ranks; positive (90), negative (18), mean ranks; negative (58.47), positive (53.71)

Value addition to student’s participation in Netball by Public National, Extra County, County, and Sub-County secondary schools in Nandi County

Table 16: Test statistic – Netball for National, Extra County, County, and Sub-County public secondary Schools

School category	Z	Asymp. sig (2-tailed)	Median primary	Median secondary
National	-.352	.725	1	1
Extra County	- 1.227	.220	1	1
County	- 3.584	.000	1	2
Sub-County	-.657	.511	1	1

Table 17: Wilcoxon Rank – Netball for National, Extra County, County, and Sub-County public secondary Schools

School category	VAR2 – VAR1	Rank	N	Mean rank	Sum of ranks
National	Netball secondary – Netball primary	Negative Ranks	22b	24.14	385.50
		Positive Ranks	18c		
		Ties	166		
		Total	d		
Extra County	Netball secondary – Netball primary	Negative Ranks	30b	35.78	1073.50
		Positive Ranks	41c		
		Ties	180		
		Total	d		
			251	36.16	1482.50

National	Netball secondary – Netball primary	Negative Ranks	22 ^b	24.14	385.50		
		Positive Ranks	18 ^c				
		Ties	166 ^d			17.52	434.50
		Total	206				
Extra County	Netball secondary – Netball primary	Negative Ranks	30 ^b	35.78	1073.50		
		Positive Ranks	41 ^c				
		Ties	180 ^d			36.16	1482.50
		Total	251				
County	Netball secondary – Netball primary	Negative Ranks	40 ^b	28.35	25371.50		
		Positive Ranks	14 ^c				
		Ties	269 ^d			26.07	2922.50
		Total	332				
Sub-County	Netball secondary – Netball Primary	Negative Ranks	40 ^b	53.14	1134.00		
		Positive Ranks	49 ^c				
		Ties	278 ^d			51.79	351
		Total	364				

a school category

b Netball secondary < Netball primary

c Netball secondary > Netball primary

d Netball secondary = Netball primary

A Wilcoxon signed-rank test results for national secondary schools showed no significant difference in student participation in netball, $Z = -.352$, $P = .725$, median; primary (1.00), secondary (1.00), ranks; positive (18), negative (22), mean ranks; negative (24.14), positive (17.52). These results show that the national public schools did not add value to student participation in netball. A Wilcoxon signed-rank results for Extra- County schools showed no significant difference, $Z = -1.227$, $P = .220$, median; primary (1.00), secondary (1), ranks: positive (41), negative (30), mean ranks; positive (35.78), negative (36.16). $P (.220)$ is greater than .05, showing no significant change in participation and, therefore, accepting the null hypothesis.

A Wilcoxon signed-rank results for County schools showed significant difference, $Z = -3.584$, $P = .000$,

median; primary (1.00), secondary (2.00), ranks; positive (14), negative (40) mean ranks; ranks; negative (28.35), positive (26.07).

The P-value (.000) is less than the critical value (.05) and, therefore, value addition. A Wilcoxon signed-rank results for Sub-County schools showed no significant difference, $Z = -.657$, $P = .511$, median; primary (1.00), secondary (1.00), ranks; positive (55), negative (49), mean ranks; negative (51.79), positive (53.14). The P-value (.511) is greater than the critical value (.05), showing no significant change and no value addition. The null hypothesis is accepted.

In summary, National schools did not add value to student participation in netball $Z = -.352$, $P = .725$, median; primary (1.00), secondary (1.00), ranks; positive (18), negative (22), mean ranks; negative (24.14), positive (17.52). Extra – County schools: There was no value addition in Netball, $Z = -1.227$, $P = .220$, median; primary (1.00), secondary (1), ranks; positive (41), negative (30), mean ranks; negative (36.16), positive (35.78).

County schools: There was value addition to students' participation in netball by County schools. $Z = -3.584$, $P = .000$, median; primary (1.00), secondary (2.00), ranks; positive (14), negative (30), mean ranks; negative (28.35), positive (25.07). Sub-County: Sub- County schools did not add value to student participation in Netball. $Z = -.657$, $P = .511$, median; primary (1.00), secondary (1.00), ranks; positive (55), negative (49), mean ranks; negative (51.79), positive (53.14).

CONCLUSIONS

All the categories of schools added value to volleyball, basketball, athletics, music, and drama. National, County, and Sub-County schools added value to racket games and National and Extra- County schools added value to swimming. County schools added value to netball. Extra-County schools did not add value to racket games and netball. County schools did not add value to swimming. Sub-County schools did not add value to swimming and netball.

RECOMMENDATIONS

The Ministry of Education should ensure talent development offices in every school are headed by a trained person with the necessary skills to help learners identify and nurture their talents. In addition, more resources should be provided to schools, especially in areas like football, swimming, and netball, where there is no value addition. Schools should also make participation in various activities compulsory to encourage students to develop their talents.

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